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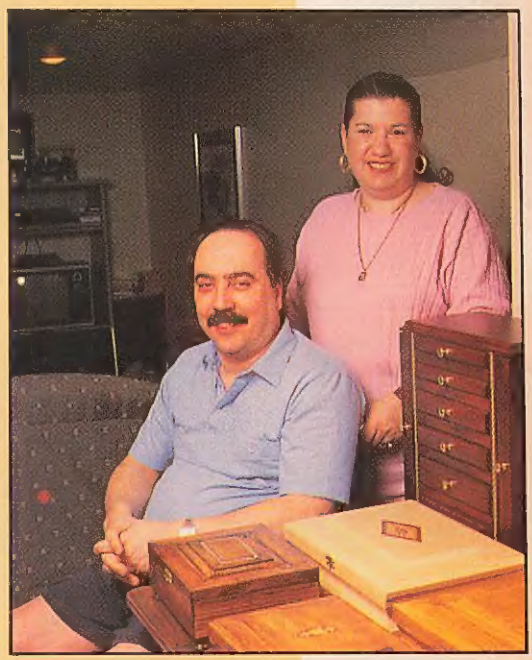
A VERY COURAGEOUS WOODWORKER

A small woodworking business helps Robert Dick cope with his disability

By Lawrice Brazel
Photos by Andy Chen

There's something remarkable about Robert Dick, founder of B & B Boxes. It's true that his custom-designed jewelry boxes—all carefully crafted and adorned with marquetry inlay and solid brass hardware—are fine examples of artistic woodcrafting. It's also true that this self-trained craftsman, with the help of his family, has created a successful small business doing what he loves—woodworking. But the most remarkable thing about Robert Dick, 47, is that he began the business after being diagnosed with multiple sclerosis, a disease of the nervous system that confined him to a wheelchair and forced him to retire from his much-loved job of almost 20 years.



Robert and his wife, Clarice.

Coping with early retirement

Robert and his wife Clarice are both native New Yorkers who moved to Rockaway, New Jersey 19 years ago to raise their children in the relative quiet of the suburbs. While living in New Jersey, Robert worked in New York City as a drug and alcohol counselor for the New York Transit Authority. Understandably, he was devastated by the MS diagnosis—"I was one of the rare breeds who really loved his job. It was difficult for me to retire at age 43. The company couldn't fire me because of my disability, but the job required a regular commuting time of four or five hours a day, and getting around in the wheelchair became too much of a hassle."

The combination of early retirement and confinement to a wheelchair depressed Robert. Clarice recalls, "After he went on disability in 1990, he would sit around moping. He needed something to do." Since woodworking was his hobby, his wife suggested that he make something out of wood. Robert remembered a jewelry box he had designed and built for Clarice. With his family's encouragement, he built another jewelry box, and the idea for B & B Boxes—named for his children Barbara, 19, and Brian, 17—was born.

Rearranging the shop

Robert knew that his first challenge would be to rearrange his small basement shop so that he could have easy access to his woodworking tools and supplies. Wood had to be stored within reach and workbenches had to be adjusted to allow him to work comfortably from his chair.

"There are some things I can't control," Robert explains. "Like the height of a radial arm saw, which is made for a person to work on while standing up. I just have to accept that it is a little uncomfortable for me—not in a dangerous way, though."

Other problems relating to shop set-up could be solved by simple ingenuity. One such problem was that of adjusting the router, a tool Robert uses extensively to prepare his boxes for inlay. Because the inlay pieces are not of uniform size, it often becomes necessary to make fine adjustments to the router table. "It was taking me an hour to do something that should have taken five seconds," he recalls. "So I thought, instead of me standing up to do it, why don't I bring it to me, sitting down. So I mounted the router to a piece of plywood and hinged the plywood base to the bench. Now I can lift the router table to me and see what I'm doing while still sitting down."

Robert's router table swings forward for ease of adjustment.

Starting the business

With his family's help and encouragement, Robert began putting his business together. A top priority was to find reliable suppliers of items such as wood, hardware, and velvet. A lumberyard in New Hampshire was found which would ship him wood via United Parcel Service. Other items, such as stains and velvet, are purchased locally at retail prices. After much research, Robert found a wholesale company from which he could purchase marquetry inlay pieces, important components of his boxes.

Most of the jewelry boxes are constructed from eastern white pine. Since many customers want their boxes to harmonize with certain pieces of furniture, Robert stains them in a variety of colors. He works an average of four hours a day, concentrating on about five boxes at a time.

A six-drawer, two-door chest, stained in oak.

Woodworking as therapy

Making jewelry boxes has proven to be excellent therapy. "When I was in the hospital, they gave me physical therapy exercises," Robert explains. "I've found that the task of making the jewelry boxes is all the physical therapy I could ask for. Physically, it keeps my hands active. Mentally, the whole scope of B & B Boxes keeps my mind away from the reality of the disease." Clarice agrees, "When he gets really depressed, this is his escape. He'll go into the workshop and forget all about it." Robert adds, "If it turns out to be successful from the business end of it, that's fine. But if I didn't sell a single jewelry box it wouldn't matter. I would just make jewelry boxes or something else for my friends. That would be therapy, too."

Business booms

Despite his detachment from monetary results, Robert *is* selling many jewelry boxes. He credits his family with much of B & B Boxes' success. Clarice helps out by selling at craft shows, and she also attaches velvet to the inside of each box. Robert's daughter helps him choose inlay designs and assists at craft shows. Robert's son takes on many of the more physical tasks, such as carrying wood into the basement and setting up tables and tents at shows.

B & B Boxes has come a long way since their first show in 1991. In Robert's words, "Our first show was in a flea market environment, and we didn't do that well. People weren't there to spend a lot of money. To me, this is an honest-to-goodness craft, with lots of artistry involved."

An assortment of small jewelry boxes.

A Very Courageous Woodworker *Continued from page 5*

Now, Robert and Clarice only participate in four craft shows a year—these are upscale, juried shows in which the promoters carefully screen the participants. While they cost a little more to participate in, the customers at these shows are often willing to spend "serious" money for fine craftsmanship. Each show lasts two or three days, and Robert and Clarice feel that this is all they can handle—Clarice holds down a full-time job, and Robert, working alone, can only produce a limited number of pieces.

Additionally, B & B Boxes are sold at a local craft shop in an arrangement that Robert insists is "the newest wave of the craft business." Rather than selling items on consignment, the store rents out shelf space to a limited number of accomplished crafters. This marketing technique has proven quite profitable, and has also led to many custom orders.

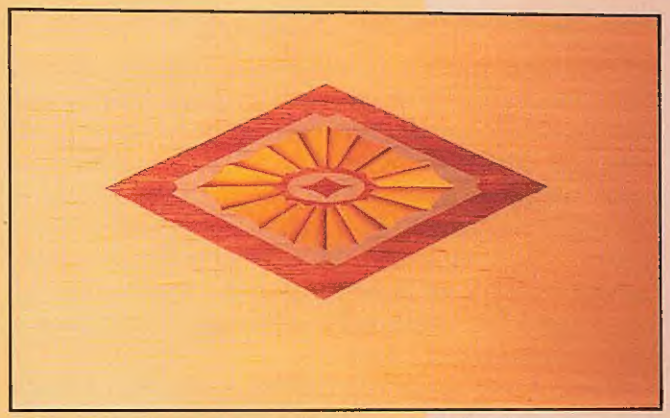
Robert has developed 17 distinct jewelry box designs, all of which are carefully documented in his plan book. At craft shows, Clarice listens attentively to customers' comments, taking notes on what she hears—this provides her husband with valuable feedback about what people want.

Much to be thankful for

The response to Robert's boxes has been so strong that promoters are now asking him to participate in more craft shows. "The promoters are really incredible," he notes. "They are so willing to help, they'll do anything they can to make it easier for me." Show organizers usually assign him a booth location that is easily accessible.

An assortment of popular designs.

A medium-size box featuring a center inlay piece.



Inlay centerpieces characterize many of Robert's boxes.

Because of his disability, craft shows can be very draining for Robert, so his hours at each show are kept to a minimum. However, he is excited about participating in an upcoming show located in a hotel that will provide an air-conditioned environment and a guest room should he feel the need to rest.

As business becomes more profitable, the couple has been toying with the idea of Clarice quitting her regular job in order to devote herself full-time to B & B Boxes. But until then, they are both content to continue in the present manner. Robert knows that the most important aspect of the business is the personal satisfaction he derives from it.

"When I'm in the workshop, I don't feel that I'm 'shorter' than everybody else because I'm in a wheelchair. That fact escapes me for a time. That's my psychological therapy." Robert is also very proud of his work. "It's very rewarding to sit back and look at a box when it's finally completed. After all the hard work and labor I've put into it, I can say to myself, 'that's a really nice jewelry box.'"

For more information, contact B & B Boxes, Dept. WW, 10 Crestwood Road, Rockaway, NJ 07866.

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ON THE LEVEL

Welcome to the thirty-second issue of *Creative Woodworks and Crafts!* In this issue, Lawrice Brazel brings us an inspiring story about woodcrafter Robert Dick who, at age 43, faced a diagnosis of multiple sclerosis without becoming embittered and reclusive. How did he do it? He immersed himself in crafting custom jewelry boxes and, with the loving support of his family, a successful business was born. Now that's courage!

Also, we've got a terrific article by Dirk and Karen Boelman on (quite literally) the "ins" and "outs" of scroll sawing. Whether you're an expert or a beginner, Dirk and Karen's presentation will definitely enhance your knowledge of woodworking with valuable scroll sawing tips and information. Once you've read the article, you can put your skills to the test with a fine project from Wildwood Designs—the Victorian Sleigh. With James Reidle and Dirk Boelman regularly designing for *Creative Woodworks and Crafts,* we've got on board two of the finest scroll-saw pattern designers in North America.

And of course, as always, we've got lots of other fine, original projects. Of special interest is Lavon B. Smith's Hardwood Sleigh—the entire project is presented in a step-by-step manner, but with *photography* rather than words as the main means of instruction. Please write to let us know if you find this type of presentation effective—if you do, we'll use it more in the future.

Finally, I'd like to thank you, the readers, for making *Creative Woodworks and Crafts* a real success. Subscriptions have been growing consistently, and we're so encouraged that we'll soon be coming out with another woodworking magazine—*EASY WOOD*—so keep your eyes peeled for money-saving subscription opportunities. Thanks for your support, and until the next issue, all the best!

Sincerely,

Robert A. Becker

WINE RACK

Project 1

Designed by Robert E. Belke
(Color photo page 32)

BILL OF MATERIALS

Part	Description	Size in inches	Quantity
Cherry*:			
A	Sides	3/4 x 9 x 25	2
B	Bottle holders	3/4 x 2-1/2 x 19-1/16	8
C	Wedges	1/4 x 3/4 x 2	16

Note: this project also looks good in oak.

SUPPLIES

Tools: drill press with assorted twist bits and 3/4", 1", and 2" Forstner bits; wood chisel; mallet; saber saw or coping saw; router with 1/4" rounding-over bit; assorted files; spokeshave; band saw; backsaw
Sandpaper, assorted grits
Wet/dry paper, No. 600
Varnish—*McCloskey's*® No. 0060 semi-gloss

INSTRUCTIONS

Make the sides

Cut the two sides (A) to shape as shown in Drawing No. 1, and then lay out the hand-holds, vertical slots, and mortises as shown.

Once the layout of the sides has been completed, cut the eight mortises in each piece (A) as shown in the drawing. To cut these mortises, use a drill press and 3/4" Forstner bit to bore a hole in the exact center of each mortise location, and then square up the holes with a wood chisel and mallet. **Tip:** use a wooden backer board beneath the sides (A) when squaring up the mortises to prevent bottom-side tear-out.

Continuing to refer to Drawing No. 1, use a 1" Forstner bit to bore out the ends of the hand-holds, and use a 2" Forstner bit to bore out the ends of the vertical slots. Finish cutting out the vertical slots and hand-holes with a saber saw or coping saw, and then smooth the vertical-slot sides with a spokeshave.

Next, use a file to blend the two long edges of each side piece (A) into the circular ends, and also to smooth the edges of the hand-holds and vertical slots. Using a router with a 1/4" rounding-over bit, round over all the outer edges, hand-holds, and vertical slots.

Thoroughly sand all surfaces of both sides (A) and set them aside for assembly.

Make the bottle holders

Cut the eight bottle holders (B) to size. Next, lay out the curves and end tenons as shown in Drawing No. 2—to do this, either lay out the cutting lines directly on each of the eight pieces, or make a template from 1/4" plywood and transfer the shape to each holder (B).

Cut the bottle holders to shape with a band saw. If one is not available, cut the curves with a coping saw and use a backsaw to cut the tenons. File and sand the curves until smooth, then size the end tenons to fit the mortises in the sides (A)—this can be done with a straight chisel and file.

Using a router with 1/4" rounding-over bit, round over all surfaces of each bottle holder (B) except for the tenons. On the top surface of each tenon, lay out a mortise to accept a 1/4" wedge (1/4" wide x 3/4" long)—bore out the mortise slots with a 1/4" bit, and then square up each one with a wood chisel.

Thoroughly sand the eight bottle holders and set aside for assembly.

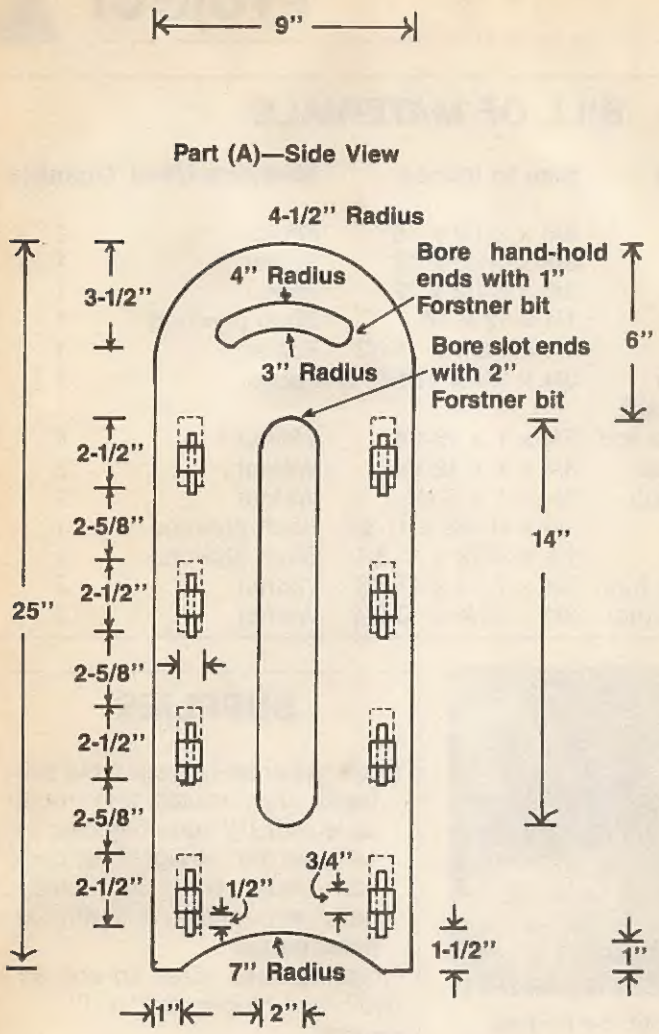
Make the wedges and assemble

The wine rack requires 16 wedges (C). Referring to Drawing No. 2, cut them to size and shape, and then sand the sawn edges smooth. Make sure that all the wedges fit into the mortises in the bottle holders (B).

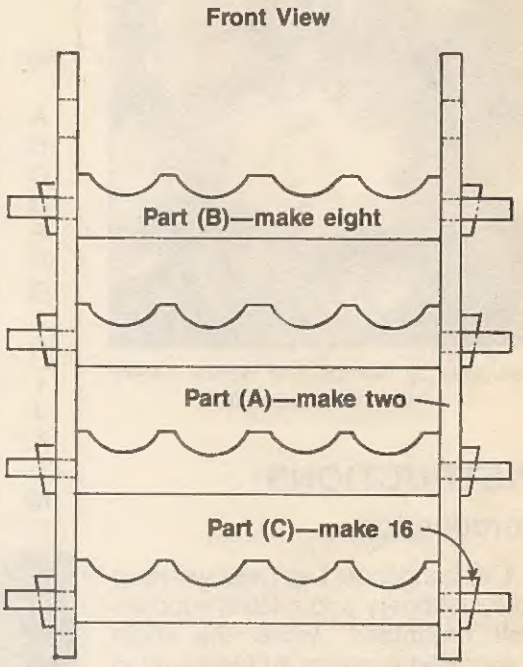
Assemble the wine rack as shown in Drawing No. 3. Once the bottle holders have been slipped into position between the side pieces, simply tap the wedges into their corresponding mortises. If the wedges are too tight, trim them as needed.

Finish

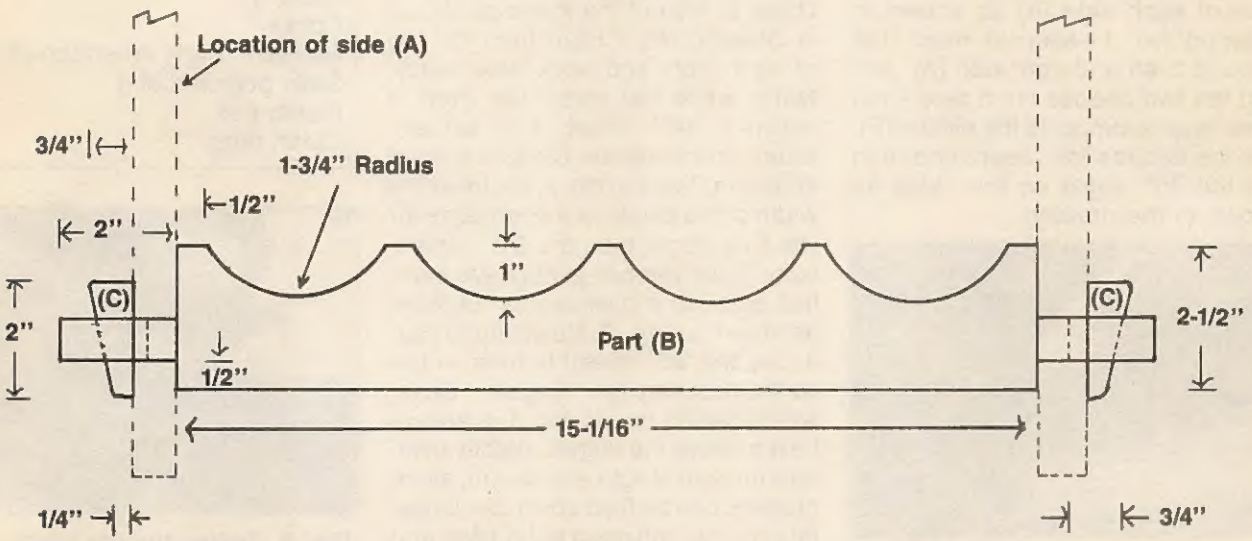
Apply two coats of McCloskey's (No. 0060) semi-gloss varnish to all surfaces, sanding lightly between coats with No. 600 wet/dry paper. Let dry, and your Wine Rack is ready to use!



Drawing No. 1—Wine Rack Side Panel



Drawing No. 3—Wine Rack Assembly



Drawing No. 2—Bottle Holder And Wedge Detail

LAP DESK

Project 2

Designed by George and Wendy Ahlers
(Color photo page 33)

BILL OF MATERIALS

Part	Description	Size in inches	Materials Used	Quantity
A	Sides	3/8 x 2-1/2 x 16	Poplar	2
B	Front	3/8 x 1-1/2 x 12	Poplar	1
C	Back	3/8 x 2-1/2 x 12	Poplar	1
D	Bottom	1/4 x 12 x 16	Birch plywood	1
E	Divider	1/4 x 1-3/4 x 11-1/2	Poplar	1
F	Cross brace	3/4 x 3/4 x 11-1/4	Poplar	1
G	Front and back trim—lid and top	3/4 x 1 x 13-1/4	Walnut	4
H	Side trim—lid	3/4 x 1 x 12-1/4	Walnut	2
I	Side trim—top	3/4 x 1 x 5-1/4	Walnut	2
J	Lid panel	1/4 x 10-7/8 x 11-3/4	Birch plywood	1
K	Top panel	1/4 x 3-7/8 x 11-3/4	Birch plywood	1
L	Bottom side trim	3/4 x 1-1/4 x 17-5/8	Walnut	2
M	Bottom end trim	3/4 x 1-1/4 x 13-3/4	Walnut	2

INSTRUCTIONS

Introduction

This handsome Lap Desk will keep your stationery and related supplies well organized, while the birch plywood lid provides an ideal writing surface. The Lap Desk's sides are joined together with "finger" or "box" joints, which give the project a handcrafted look. No elaborate setup is required to cut the box joints—all you'll need is a chisel and backsaw.

Make the box assembly

Cut the sides (A), front (B), and back (C) to specified dimensions. Lay out the 1/4"-wide dado on the *inside* face of each side (A) as shown in Drawing No. 1—keep in mind that there is a *left* and *right* side (A), and that the two dadoes must face each other to accommodate the divider (E). Cut the dadoes 1/8" deep, and then cut the 85° angle on the sides as shown in the drawing.

Fig. 1. Marking for depth of cut.

Fig. 2. Laying out the fingers.

Now it's time to lay out and cut the box joints on parts (A), (B), and (C). Referring to **Figs. 1 and 2**, use a 3/8" chisel to lay out the joints as shown in Drawing No. 2 (start from the top of each part and work downward). **Note:** while the chisel we used is called a 3/8" chisel, it is actually wider—in the full size box-joint pattern shown in Drawing No. 2, we used the width of the chisel as the template for the cuts rather than the 3/8" dimension. Once the box joints have been laid out, use a backsaw to cut them as shown in **Fig. 3.** Referring to **Fig. 4**, use the 3/8" chisel to remove the waste between the "fingers." **Note:** when cutting box joints, it is always best to leave the fingers slightly oversize (in both length and width), since material can be filed down, but loose-fitting joints will need to be filled and are aesthetically less desirable.

SUPPLIES

Tools: radial arm saw or table saw; band saw; router and router table with 1/4" rounding-over bit, 1/4" and 3/8" straight bits; backsaw; miter box; 3/8" chisel; hammer or mallet; drill with bits; miter gauge
Finishing nails, sizes 2d and 3d
Two brass hinges, 3/4" x 1"
Square
Sandpaper, assorted grits
Wood glue
Files
Clamps
Epoxy
Minwax® Early American oil stain
Satin polyurethane
Paintbrush
Clean rags

Fig. 3. Cutting the box joints with a backsaw.

Fig. 4. Using a mallet and chisel to remove the waste.

Once the box joints have been cut, test-fit them. If they're too tight, file them down until a nice, snug fit is attained. If they're too loose, don't despair—when it's time to join the box assembly, you can correct the loose-fitting fingers as follows: Make a paste of epoxy and sawdust which has come from the same species of wood as the sides (in this case, poplar) and apply this mixture to the loose-fitting joints. The beauty of this technique is that the mixture will absorb the stain the same way that the surrounding wood will absorb it.

Cut the bottom (D), divider (E), and cross brace (F) to specified dimensions. Next, thoroughly sand all the components that have been cut thus far. Once the sanding has been completed, assemble the basic box as shown in Drawing No. 3. Glue up the finger joints on parts (A), (B), and (C), interlock them, and clamp. Attach the bottom (D) with glue and 2d finishing nails. Next, insert the divider (E) into the appropriate dadoes and secure it in place with 2d finishing nails. **Tip:** drill a 1/16"-Dia. pilot hole for each finishing nail to prevent splitting. Nail the cross brace (F) in position as shown in the drawing, let dry, then sand the finger joints and fill them as required.

Once dry, finish-sand the entire box assembly.

Make the lid assembly

Cut trim pieces (G), (H), and (I) and the two panels (J) and (K) to specified dimensions. Next, finish-sand the two panels (J and K).

Using a router, router table, and 1/4" straight bit, rout a 1/4"-wide groove along the inside edge of trim pieces (G), (H), and (I) as shown in Drawing No. 4. Once the grooves have been routed, change to a 1/4" rounding-over bit and round over the edges as shown in the drawing.

Continuing to refer to Drawing No. 4, cut the 45° miters on parts (G), (H), and (I). Assemble the lid and top components as shown in the drawing, securing panels (J) and (K) in the grooves cut earlier in trim pieces (G), (H), and (I). Use glue and 3d finishing nails to secure the miter joints, and let dry.

Once dry, sand the two panels (J and K) as needed, then lay out and cut the mortises for the hinges as shown in Drawing No. 4.

Secure the lid to the top-panel assembly with two 3/4" x 1" brass hinges, and then nail the top-panel assembly to the basic box as shown in Drawing No. 5.

Continued on page 12

Finishing touches

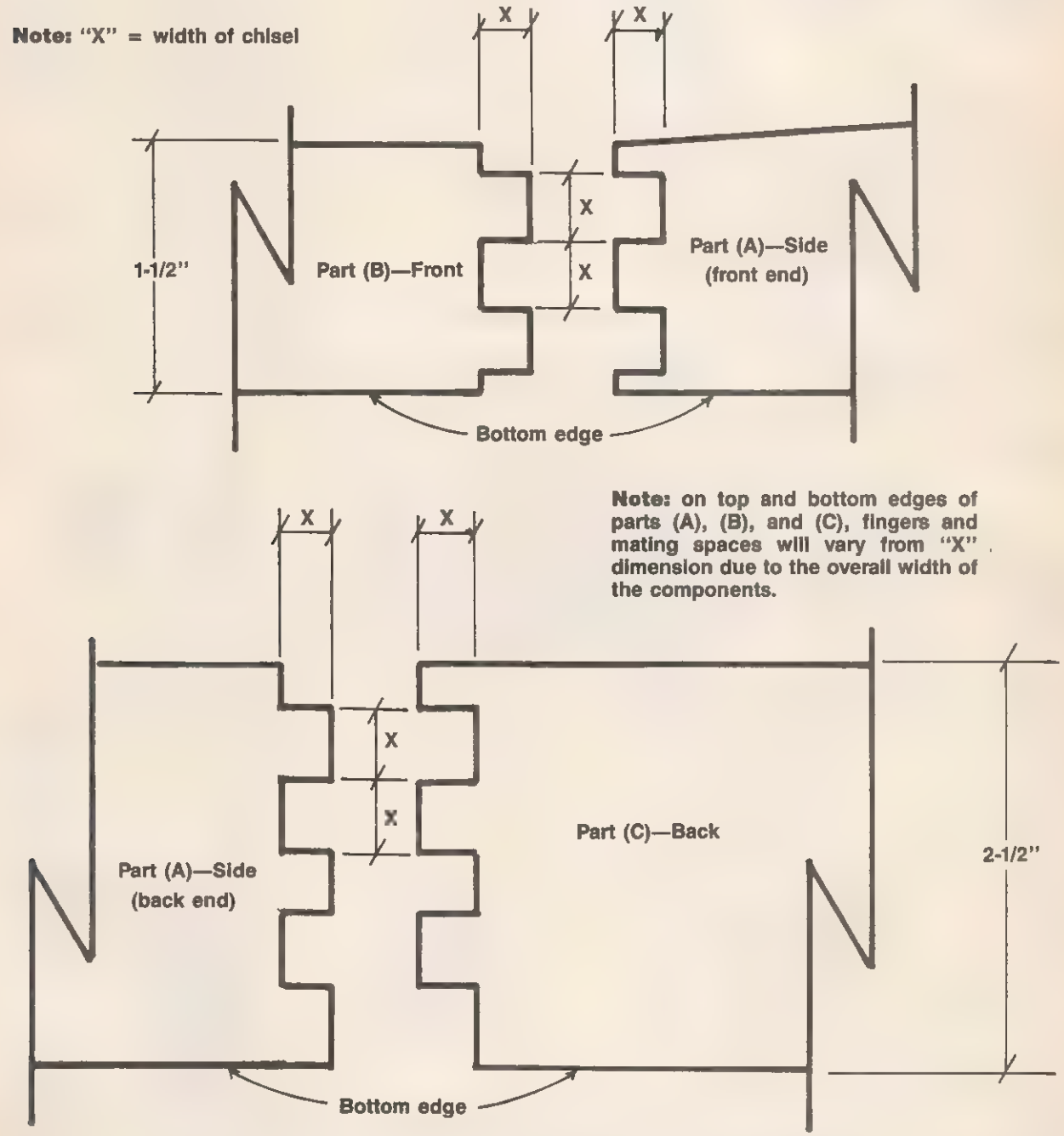
Cut trim pieces (L) and (M) to size. Using a router, router table, and 3/8" straight bit, cut a 3/8"-wide x 1/4"-deep rabbet along the inside edge of parts (L) and (M) as shown in Drawing No. 6. Next, change over to a 1/4" rounding-over bit and round over the edges as shown in the drawing.

Continuing to refer to Drawing No. 6, cut the 45° miters on parts (L) and (M). Next, assemble the four trim pieces as shown in the drawing, and then secure the box assembly in the appropriate rabbets using glue and 3d finishing nails.

Finish-sand all surfaces as needed, then stain the entire project with Minwax Early American oil stain. Let dry, and apply a coat of satin polyurethane.

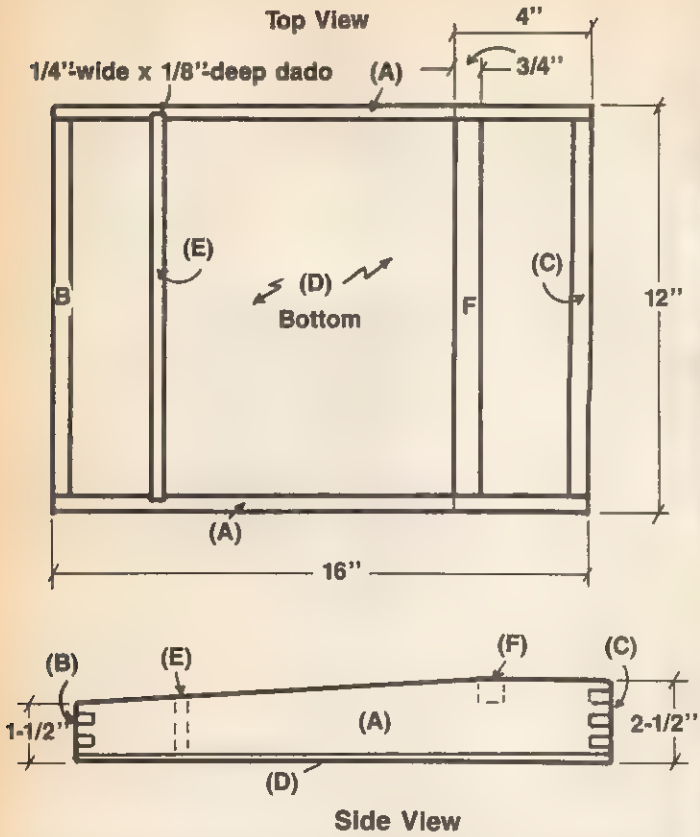
Your Lap Desk is ready to use!

To order other fine woodworking plans and projects designed by George and Wendy Ahlers, see HANDCRAFTS in our Source of Supply list.

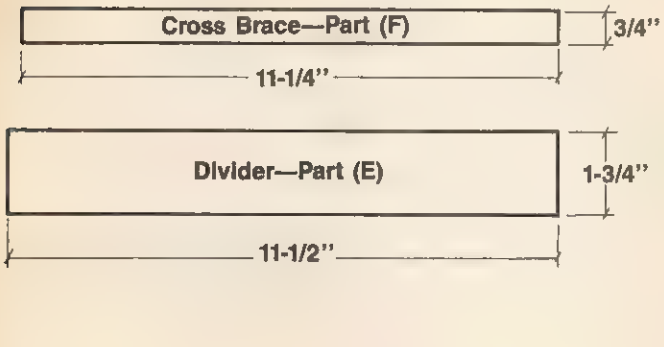


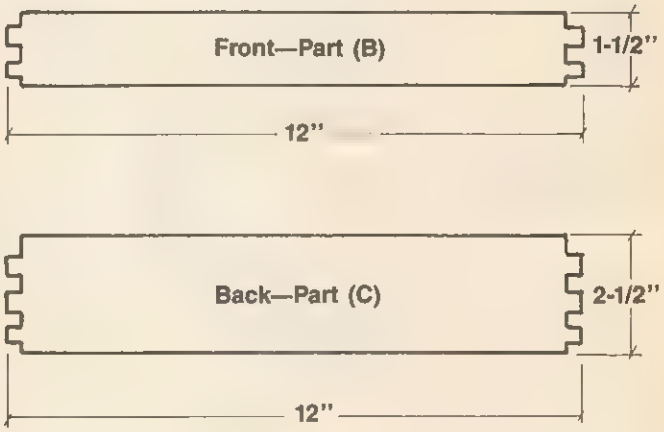
Drawing No. 2—Full Size Box Joint Details

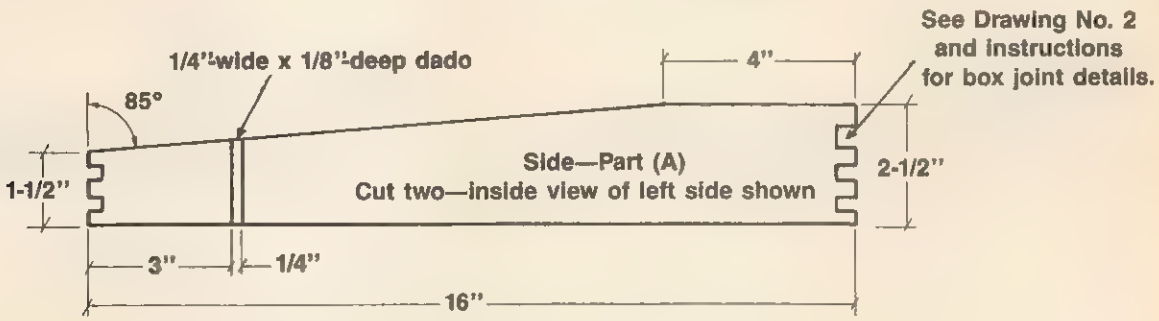
Lap Desk



Drawing No. 3—Plan View Of Box Assembly

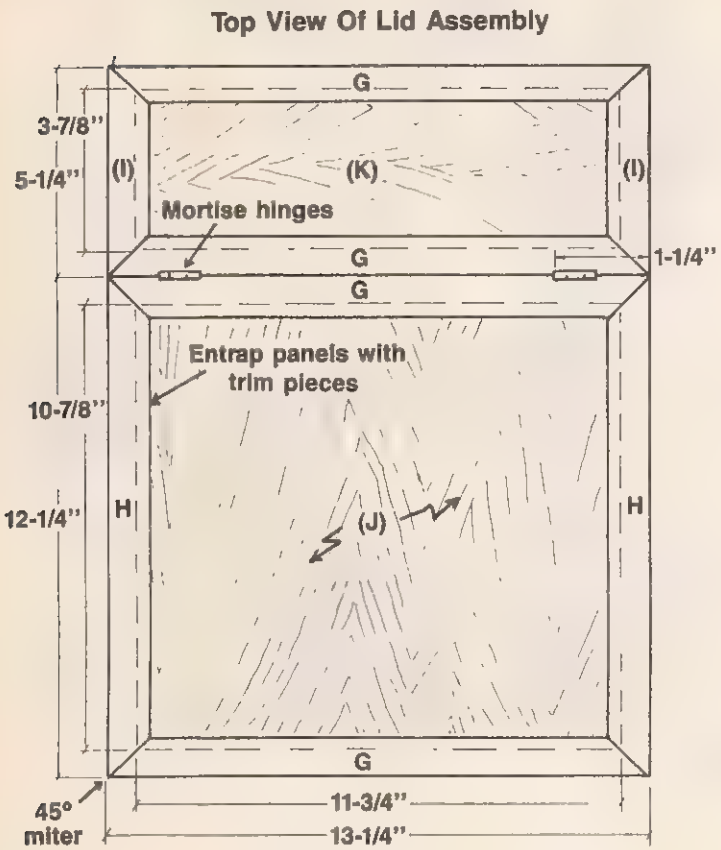


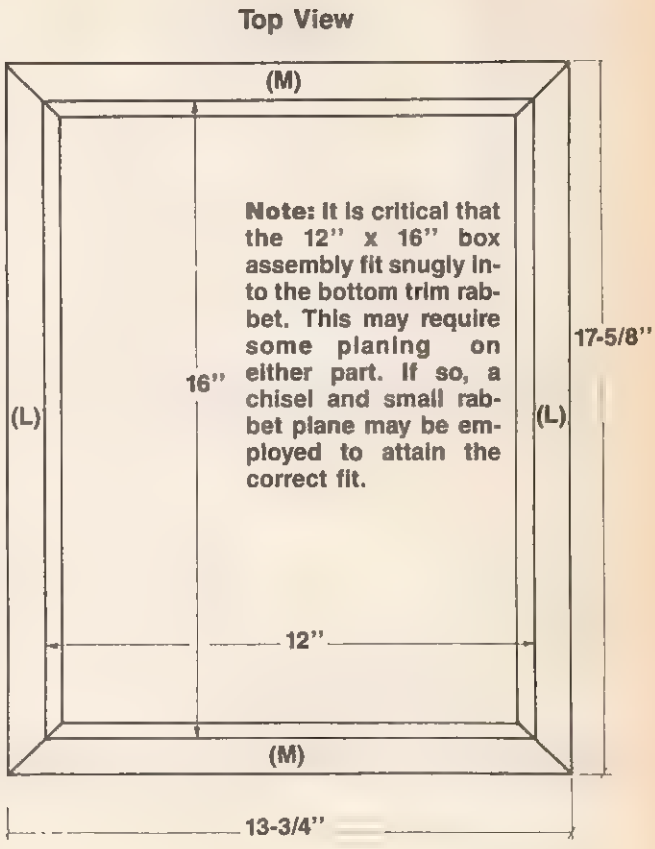


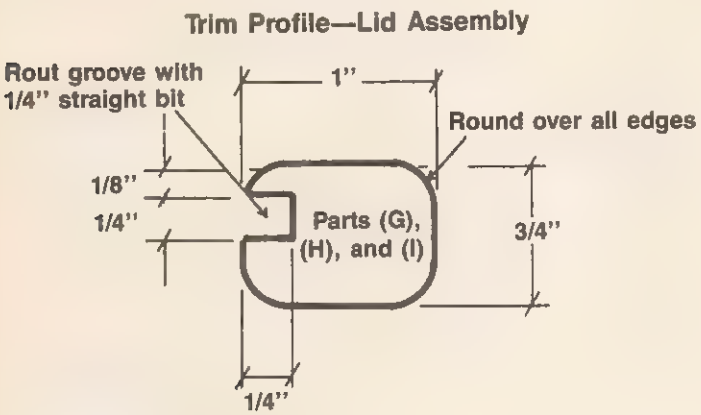


Drawing No. 1—Basic Box Components

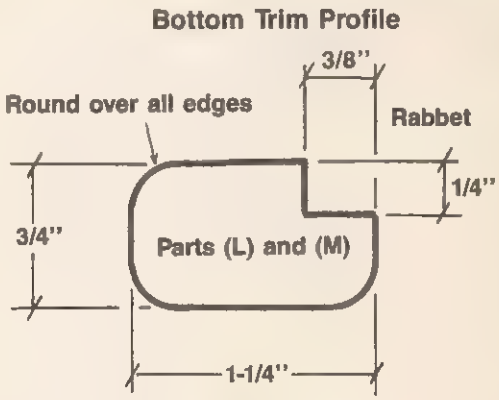
Continued on page 14





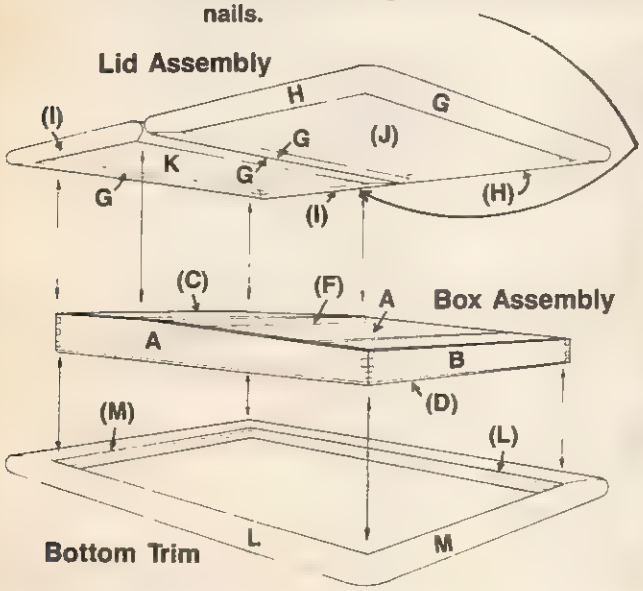


Drawing No. 4—Lid Assembly And Trim Profile



Drawing No. 6—Bottom Trim Assembly And Profile

Note: attach top panel (K) assembly to basic box with glue and 3d finishing nails.



Drawing No. 5—Exploded View

OAK ENTERTAINMENT CENTER Project 3

INSTRUCTIONS

Make the basic box

Cut parts (A), (B), and (C) to specified dimensions. Use glue and 1-1/2" sheetrock screws to secure the sides (A) to the top and bottom (B) as shown in Drawing No. 1. Next, mark the locations for the screws that will fasten the shelves (C) to the sides (A). At each location, counterbore a 3/8" Dia. x 3/8"-deep hole, then drill through the remaining wood thickness with a 3/16" bit. Do not install the shelves in the basic box yet—we're going to first cut the rabbet for the back (D).

Rout a 1/4"-wide x 3/8"-deep rabbet around the inside-back edge of the basic box subassembly (parts A and B)—this will accommodate the back, which will not be installed until the very end of the construction process.

Before installing the shelves (C), make sure they are 3/8" *narrower* than the sides (A)—this leaves space for the back (D) to be installed later. Now, secure the shelves in position with 1-1/2" sheetrock screws. Glue wood plugs in the counterbored holes (to cover the screw heads), let dry, and then sand the plugs flush.

Make the facings

Rip the facings (E, F, and G) to width, allowing 1/8" extra for jointing. Joint the edges, then cut all six pieces to specified lengths. Dry-assemble the facings as shown in Drawing No. 2, number each joint, then lay out the location for a biscuit spline in each joint.

Using a jointer-splicer machine, cut

BILL OF MATERIALS—

Part	Description	Size in inches	Material used	Quantity
Basic box:				
A	Sides	3/4 x 20 x 42-1/4	Oak plywood	2
B	Top/Bottom	3/4 x 20 x 31-7/8	Oak plywood	2
C	Shelves	3/4 x 19-5/8 x 31-7/8	Oak plywood	2
D	Back	1/4 x 32-5/8 x 39-3/4	Oak plywood	1
Facings:				
E	Vertical	3/4 x 2 x 42-1/4	Oak	2
F	Top/Bottom	3/4 x 2-1/2 x 29-3/8	Oak	2
G	Center	3/4 x 1-1/2 x 29-3/8	Oak	2
H	Top	3/4 x 22-1/4 x 36-3/8	Oak	1
Base:				
I	Ends	3/4 x 4 x 21-1/2	Oak	2
J	Front	3/4 x 4 x 34-7/8	Oak	1
Molding:				
K	End pieces	3/4 x 1-1/4 x 21-1/2	Oak	2
L	Front	3/4 x 1-1/4 x 34-7/8	Oak	1
Drawer box:				
M	Front/Back	3/4 x 6-1/2 x 28-5/16	Pine	2
N	Ends	3/4 x 6-1/2 x 16-1/4	Pine	2
O	Bottom	3/8 x 17 x 28 (cut to fit)	Plywood	1
P	Drawer front	3/4 x 7-1/2 x 30-1/8	Oak	1

a slit at each biscuit location just marked. Install a biscuit in each joint, then glue and clamp the facings as shown in Drawing No. 2. Once dry, remove the clamps, then sand both the front and back surfaces with a belt sander.

Secure the facings to the basic box

Lay the basic box front-side-up and position the facings on the front. Lay out screw locations for securing the facings to the box. Counterbore a 3/8"-Dia. x 3/8"-deep hole at each screw location, then drill through the remaining wood thickness with a 3/16" bit. Secure the facings with 1-1/4" sheetrock screws and glue. Plug the counterbored holes, let dry, then sand the plugs flush. (See Drawing No. 3.)

Fine-sand the front surface of the facings and the sides of the cabinet box.

Make the top, base, and molding

Glue-up stock for the top (H), let dry, and then cut to specified dimensions. Sand all surfaces, then rout around the ends and front edge with a 3/8" Roman ogee bit. Attach the top (H) to the top of the cabinet box by driving 1-1/4" sheetrock screws up through part (B) (see Drawing No. 4).

Rip base components (I) and (J) to specified width, allowing about 1/8" extra for jointing. Joint the edges, cut to rough length, and then rout along one edge of each board with a 3/8" Roman ogee bit as shown in Drawing No. 5. Cut the front base board (J) to exact length by cutting a 45° miter at each end. Next, cut a 45° miter at one end of each end baseboard (I)—these miters will join the two miters that were cut on part (J). Allowing the two end pieces (I) to protrude slightly beyond the back of the cabinet, secure them to part (J) with 1-1/4" sheetrock screws—use the same technique for attaching the baseboards to the cabinet as was used for the shelves and facings (i.e., counterboring, wood plugs, etc.). Once the three baseboards have been thus secured, trim the back ends of the two end pieces (I) so that they are flush with the cabinet's back.

Rip the material for the molding (K and L), which will be installed under the top (H). Smooth the edges on the jointer, then rout along one edge with a 3/8" Roman ogee bit (see Drawing No. 6). Cut 45° miters at the two front corners, and secure the three pieces of molding with 1-1/2" finishing nails. Once the molding has been nailed in place, use a No. 2 nail set to drive the nail heads below the surface of the wood.

Make the drawer

Referring to Drawing No. 7, cut drawer-box components (M) and (N) to specified dimensions. Using a table saw with dado blade, cut a 3/8" x 3/8" rabbet 1/2" up from the bottom edge of each board—this will accommodate the bottom (O). Next, cut the bottom (O) to rough size. Dry-assemble parts (M) and (N) to determine the *exact* dimensions for part (O)—measure inside the 3/8" x 3/8" rabbet just cut, and then cut the bottom to exact size. Using glue and 1-1/4" sheetrock screws, assemble the drawer box as shown in the drawing.

Cut the drawer front (P) to size, sand all surfaces, and rout around the front edge with a 3/8" Roman ogee bit. Secure part (P) to the drawer-box front (M) with 1-1/4" sheetrock screws driven from the inside of the box.

Next, locate the position of the drawer handles on part (P) and lay out the bolt locations. At each bolt location, drill a 3/16" hole through the drawer front (P) and drawer-box front (M). **Note:** most screws provided with drawer handles are meant to be used for 3/4"-thick stock; since the total thickness of our drawer's front is 1-1/2" (parts M and P combined), the bolt holes must be counterbored from the back side to a depth of about 3/4"—another solution is to buy longer bolts at a hardware store. Once these holes have been drilled, do *not* yet attach the drawer handles—we're going to finish the cabinet first.

Following the manufacturer's instructions, attach the drawer glides at this time.

SUPPLIES

Tools: table saw with dado blade; router with 1/4" rabbeting and 3/8" Roman ogee bits; biscuit joiner with size No. 12 biscuits; jointer; belt sander; drill with bits; No. 2 nail set
Sheetrock screws, 1-1/4" and 1-1/2" (Approx. 24 of each)
1-1/2" finishing nails
3/4" wire brads
Wood glue
Clamps
Two drawer handles of choice
Garnet paper, assorted grits
Minwax® wipe-on stain of choice
Semi-gloss polyurethane (spray)
One set 16" side-mounted drawer glides—available from Paxton Hardware—Part No. 6692 (PO Box 256, Upper Falls, MD 21156 [410-592-8505])
No. 0000 steel wool

Finish

Fine-sand all surfaces as needed, and remove all dust. Apply the Minwax wipe-on stain of your choice, let dry, and then buff with No. 0000 steel wool. Spray on three coats of semi-gloss polyurethane, sanding lightly between coats with 220 grit garnet paper. Let dry.

Attach the drawer handles, then cut the plywood back (D) to size. Next, sand the back (D) lightly and apply the stain and polyurethane to the *inside* surface of part (D), using the same finishing procedure that was used for the rest of the cabinet. Let dry, then install the back (D) with 3/4" wire brads.

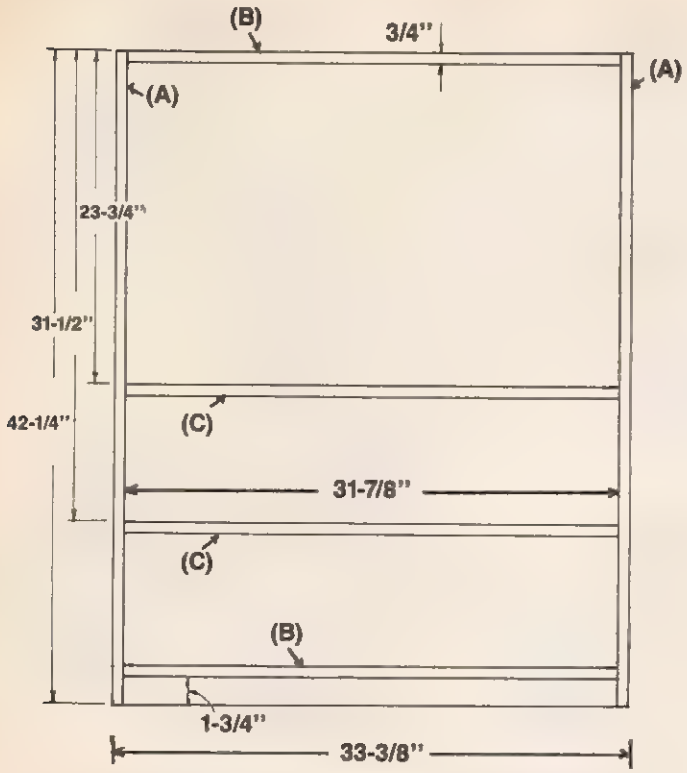
Your Entertainment Center is ready to use!

For information on ordering two outstanding woodworking books authored by Lavon B. Smith, see our Source of Supply list.

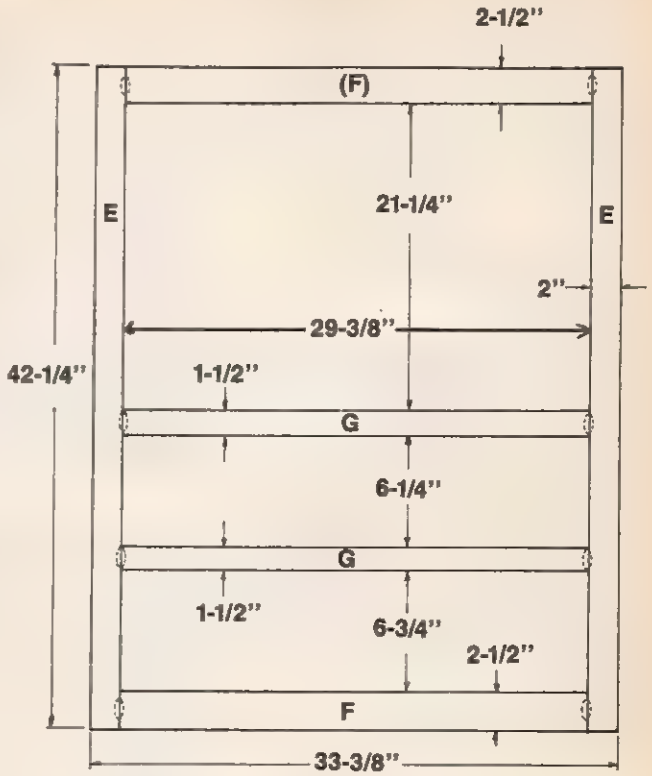
Continued on page 18

Oak Entertainment Center

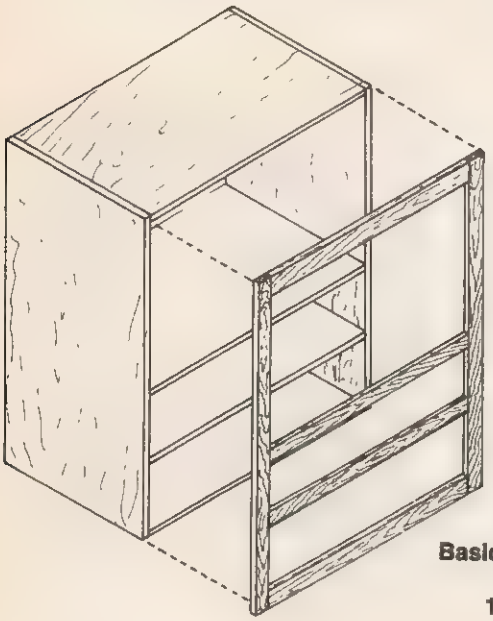
Continued from page 17



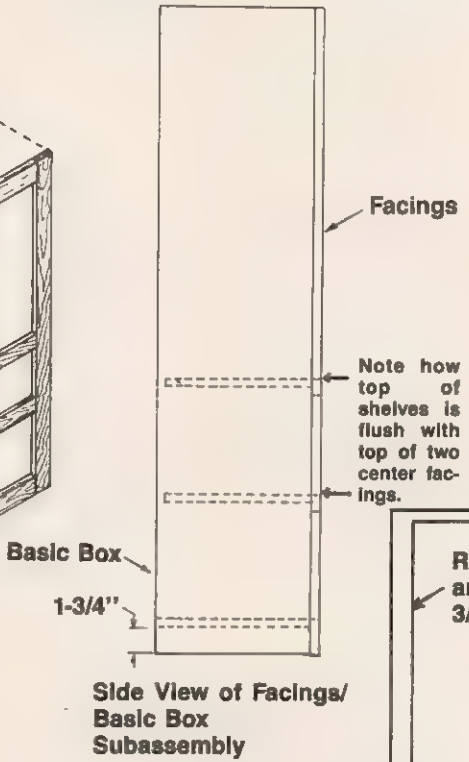
Drawing No. 1—Basic Box Assembly



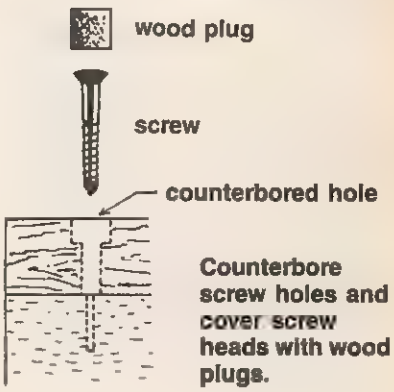
Drawing No. 2—The Facings



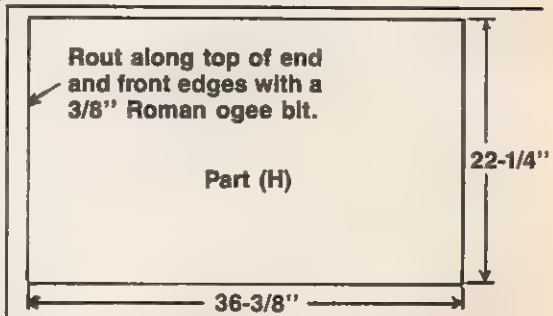
Important: tops of shelves must line up flush with tops of two center facings (G)



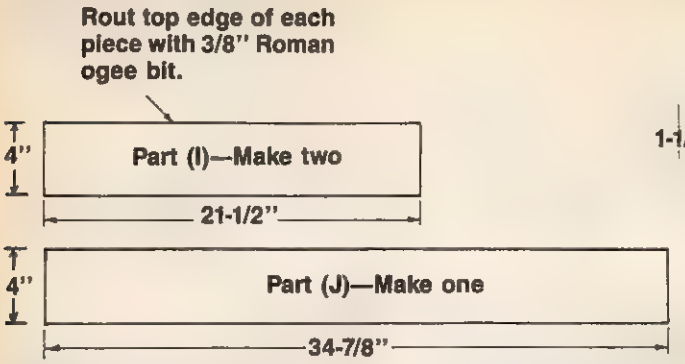
Side View of Facings/ Basic Box Subassembly



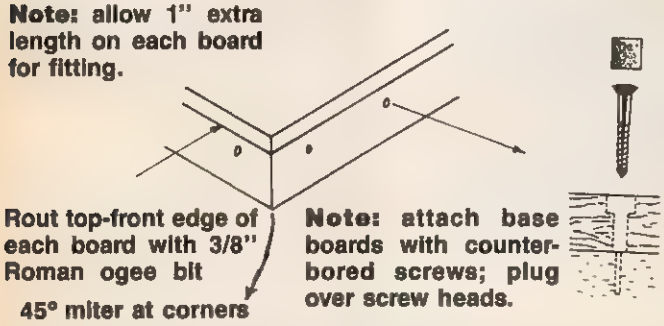
Drawing No. 3—Securing The Facings To The Basic Box



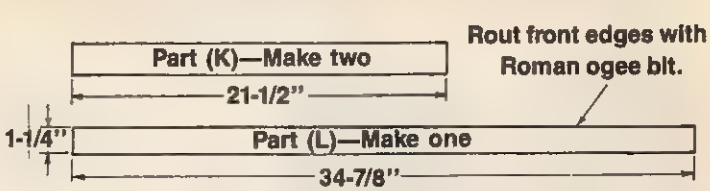
Drawing No. 4—The Top



Note: allow 1" extra length on each board for fitting.

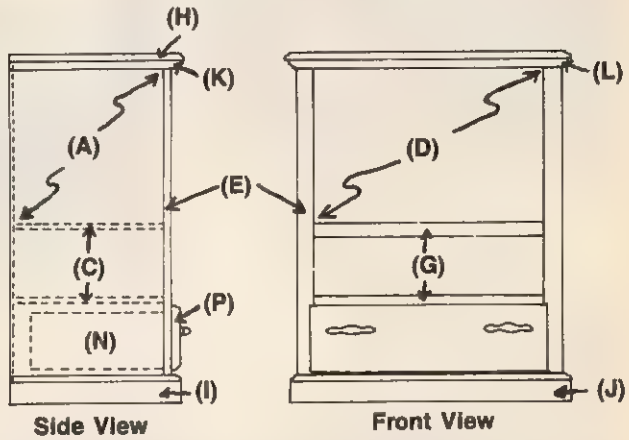


Drawing No. 5—The Base

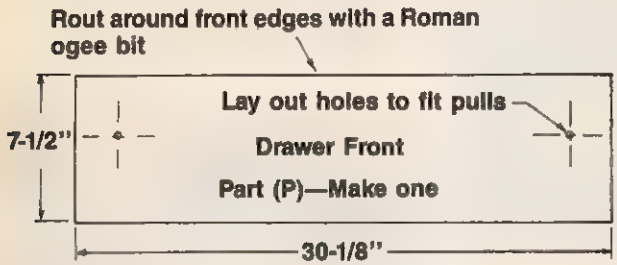


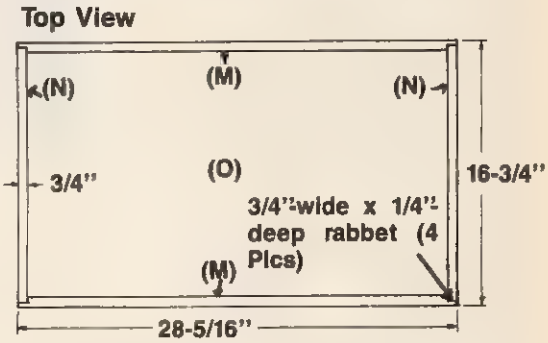
Note: join parts (K) and (L) with 45° miters at the two front corners.

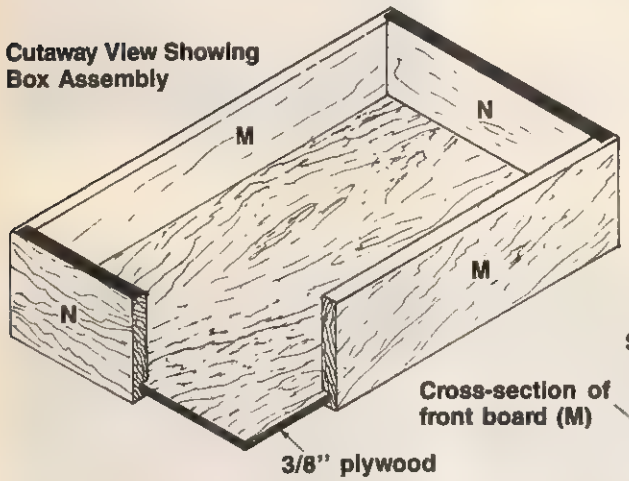
Drawing No. 6—The Molding

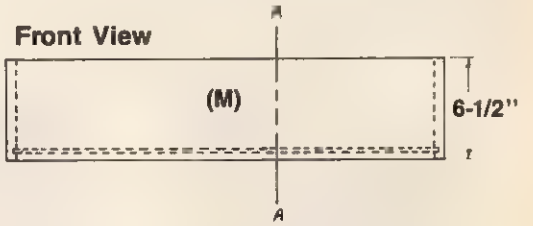


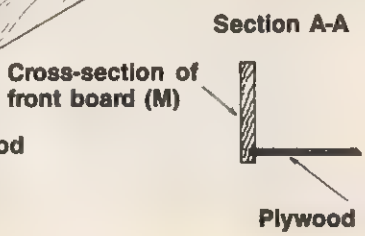
Drawing No. 8—The Assembled Entertainment Center











Drawing No. 7—Drawer Construction

TURNED ORNAMENTS

Project 4

Designed by Thomas A. Hourican
Black and white photography
by Lavon B. Smith
(Color photo page 34)

SUPPLIES

Wood: **hardwoods of choice**—two pieces 2" x 2" x 3" (for Large Tree and Bell), and one piece 1" x 1" x 3" (for Small Tree)
Tools: lathe; small gouge; skew chisel; scraper; calipers; 3-jaw chuck or small faceplate; spur center; live center; awl or punch; parting tool
Sandpaper, assorted grits
Oil finish of choice
Screw eyes
Soft, clean cloth

INSTRUCTIONS

Introduction

These fine looking ornaments will grace your Christmas tree with their handcrafted beauty, and they also make highly personalized gifts. Shaping the Large Tree Ornament will provide plenty of practice cutting the tapered V-groove, while the Small Tree Ornament calls for repetitive use of the tapered bead. The Bell Ornament, which is no beginner's project, is first turned to rough outer shape, and is then hollowed out. Once excavated, it is turned to its final outside shape.

Make the two tree-shaped ornaments

While the photos shown below are of the Large Tree Ornament, the steps that follow pertain to both the Large and Small Tree Ornaments:

Fig. 1. Punching a "dimple" in the blank's center.

Step 1. Use an awl or punch to make a "dimple" in the center of the wood blank (see **Fig. 1**).

Step 2. Mount the blank between lathe centers, then turn the wood by hand to check for clearance (see **Fig. 2**).

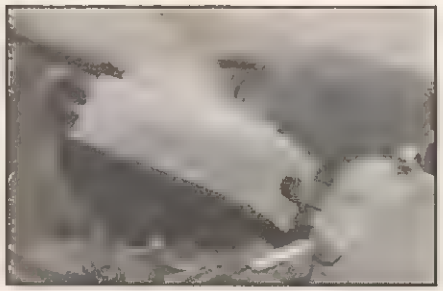


Fig. 2. Turning the stock by hand to check for clearance.

Step 3. Turn the blank down round, leaving about 1/4" waste at each end (see **Fig. 3**).

Fig. 3. Turning the stock down round.

Step 4. Referring to the full size pattern, divide the ornament into sections, and cut V-grooves to shape the Large Tree as shown in **Fig. 4**. For the Small Tree, cut beads instead of V-grooves.

Fig. 4. Cutting V-grooves to give the Large Tree its shape.

Step 5. Sand the piece as it spins on the lathe—if you have cut cleanly with sharp tools, only a minimum of sanding will be required (see **Fig. 5**).

Step 6. Apply an oil finish, then buff with a soft cloth (see **Fig. 6**).

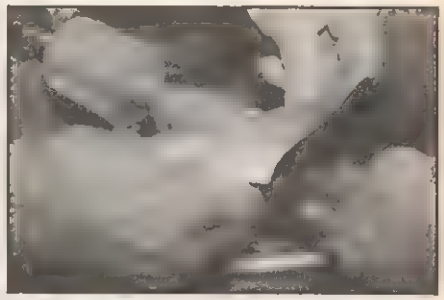


Fig. 5. Sanding the Large Tree as it spins on the lathe.

Fig. 6. Applying an oil finish.

Step 7. Remove the waste (see **Fig. 7**), and secure a screw eye in place. The completed Large Tree Ornament is shown in **Fig. 8.**

Fig. 7. Removing the waste.

Fig. 8. The completed ornament.

Make the bell-shaped ornament

Step 1. Mount the blank with a small faceplate or 3-jaw chuck (see **Fig. 9**).

Step 2. Turn the piece to rough outer shape, leaving enough stock to support the Bell during hollowing-out (see **Fig. 10**).

Fig. 10. Turning the Bell to rough outer shape.

Step 3. To hollow the Bell, first drill for depth (see **Fig. 11**).

Fig. 11. Drilling for depth to begin hollowing-out the Bell.

Step 4. Excavate the inside with a scraper as shown in **Fig. 12,** then sand and finish the cavity.

Step 5. Referring to the full size pattern, turn the outside to final shape (see **Fig. 13**).

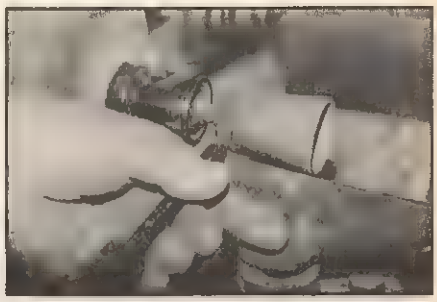


Fig. 13. Turning the outside to final shape.

Step 6. Reduce the waste at the top end, sand, and apply an oil finish (see **Fig. 14**).

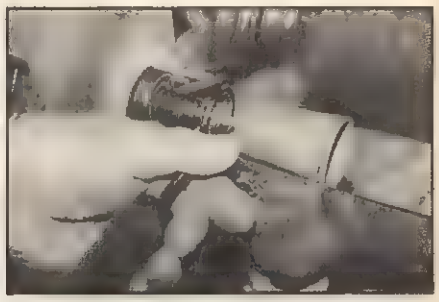


Fig. 14. Reducing the waste at the Bell's top end—this is done just before sanding and finishing the outside of the ornament.

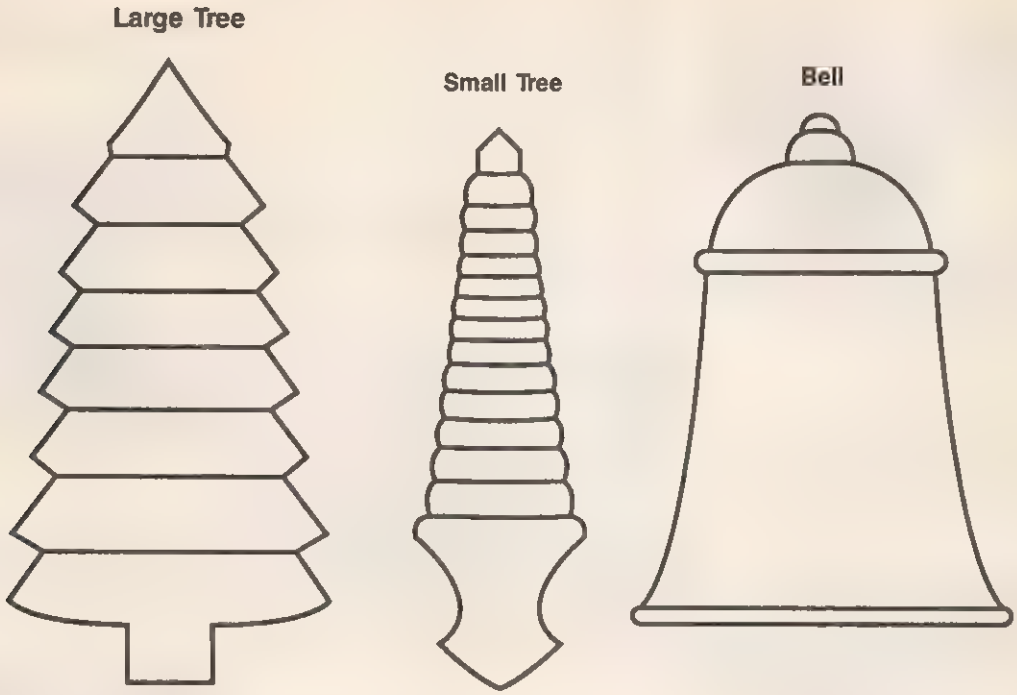
Step 7. Separate the ornament from the waste with a parting tool, secure a screw eye (for hanging), and your lovely Bell Ornament is ready to hang!

Continued on page 22

Fig. 9. Using a small faceplate to mount the blank for the Bell.

Fig. 12. Using a scraper tool to excavate the interior of the Bell.

 Continued from page 21



Full Size Ornament Patterns

ANGEL ORNAMENTS Project 5

Designed by Jane Guthrie
(Color photo page 35)

INSTRUCTIONS

Cut the wood

Using the tracing paper and stylus, transfer the outlines of the four full size angel patterns to the 1/4" plywood. Next, cut the pieces to shape with a band saw or scroll saw, and then thoroughly sand each angel with 100 grit paper.

Paint the angels

Note: the paints used to decorate the four angels are listed in the Color Chart, which is located near the full sized patterns.

Basecoat the front and edges of all four angels with Old Parchment—apply several coats, allowing each coat to dry and then sanding lightly before proceeding to the next coat. Paint the back of each angel Mars Black and let dry. Transfer the pattern details to the appropriate shapes, then paint the angels as described below.

Flying Angel—(see Color Chart)

Step 1. Basecoat the underskirt Mars Black.

Step 2. Mix Titanium White, Yellow Ochre Light, and Grumbacher Red, and paint two coats on the face, hand, and foot. While the paint is still wet, pick up a bit more Grumbacher Red on your brush and dot-in the cheeks. **Note:** you will use these mixtures for

SUPPLIES

Wood: one piece **plywood,** 1/4" x 12" x 12"
Tools: band saw or scroll saw with 1/8" blade
Gold string
Felt
Tracing paper
Stylus
Sandpaper, 100 grit
Paintbrushes of choice
Hot glue gun and glue sticks
Varnish
Paints (see Color Chart)

all the angels' faces, cheeks, and lips.

Step 3. Eye is a dot of Mars Black.

Step 4. Base the hem, cuff, and halo with a mixture of Yellow Ochre Light and Thalo Gold.

Step 5. Base the dress with Gypsy Rose, and paint the bands Titanium White.

Step 6. Paint the wing Titanium White, let dry, and reapply until opaque. The linework on the wings is Yellow Ochre Light.

Step 7. Paint the sleeve with a mixture of Gypsy Rose and a touch of Titanium White. The strokework on the sleeve is a mixture of Yellow Ochre Light and Thalo Gold.

Step 8. Base the hair with a mixture of Yellow Ochre Light, Mars Black, and a touch of Grumbacher Red. Once dry, outline the curls with Mars Black.

Step 9. Paint the dots on the halo with Titanium White.

Blue Angel—(see Color Chart)

Step 1. Mix Titanium White, Yellow Ochre Light, and Grumbacher Red, and paint two coats on the face and hand. While the paint is still wet, pick up a bit more Grumbacher Red on your brush and dot-in the cheeks and lips.

Step 2. Base the eyes Titanium White, then mix a small amount of Manganese Blue with Titanium White and use this for the eyes' outer rim. The pupils and eyelids are Mars Black.

Step 3. Paint the dress Stoneware Blue, and the sleeve Light Stoneware Blue.

Step 4. Paint the wing Titanium White, using sufficient coats so that it becomes opaque.

Step 5. Use a mixture of Yellow Ochre Light and Thalo Gold to paint the hem of the dress and sleeve, and also for the strokework on the wing.

Step 6. Paint Titanium White dots on the hem of the dress and sleeve.

Step 7. Use Mars Black to paint the bow, and to outline the hem of the dress.

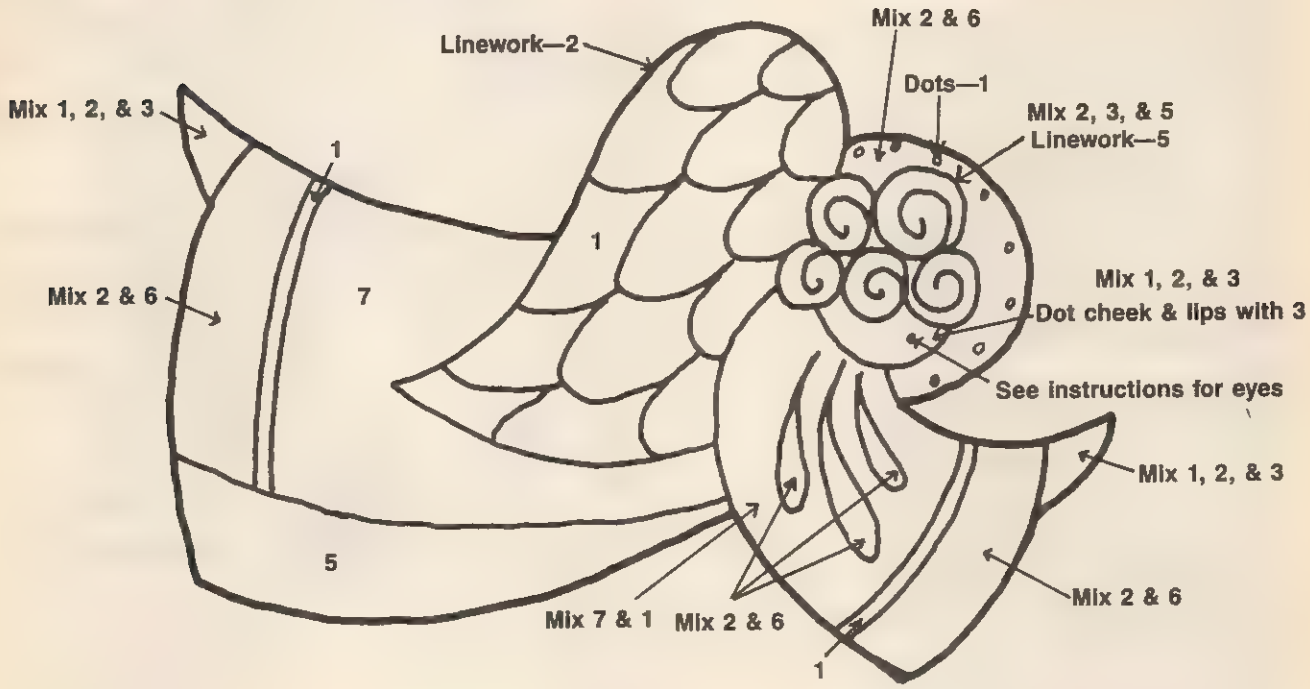
Step 8. Base the angel's hair with a mix of Yellow Ochre Light and a small amount of Grumbacher Red. Pick up a touch of Titanium White on your brush to add the linework on the hair.

Angel With Outspread Wings—(see Color Chart)

Step 1. Base the area of the wings closest to the dress and halo with Maple Sugar. While this is still wet, blend in Old Parchment, starting from the wing tips and working inward. Let dry, then paint the wing outlines with Titanium White.

Continued on page 24

Flying Angel



Full Size Patterns

Step 2. Mix Titanium White, Yellow Ochre Light, and Grumbacher Red, and paint two coats on the face. While the paint is still wet, pick up a bit more Grumbacher Red on your brush and dot-in the cheeks and lips.

Step 3. Base the eyes Titanium White, then mix a small amount of Manganese Blue with Titanium White and use this for the eyes' outer rim. The pupils and eyelids are Mars Black.

Step 4. Paint the halo with a mixture of Yellow Ochre Light and Thalo Gold, let dry, then add Titanium White dots.

Step 5. Paint the dress Coral and the collar Titanium White.

Step 6. Use Mars Black to base the hair and for the bow on the collar. Let dry, then add Titanium White linework on the hair.

Angel With Candle—(see Color Chart)

Step 1. Base the wings Titanium White—apply several coats until opaque.

Step 2. Base the dress with two coats of Dusty Mauve.

Step 3. Mix Titanium White, Yellow Ochre Light, and Grumbacher Red, and then apply two coats of this mixture to the face and hands. While the paint is still wet, pick up a bit more Grumbacher Red on your brush and dot-in the cheeks and lips.

Step 4. Base the eyes Titanium White, then mix a small amount of Manganese Blue with Titanium White and use this for the outer rim of the eyes. The pupils and eyelids are Mars Black.

Step 5. Mix a small amount of Yellow Ochre Light with Thalo Gold, and use this to paint the halo and also for the brushwork on the wings.

Step 6. Base the hair with a mixture of Mars Black and Grumbacher Red, and let dry. Add a small amount of Yellow Ochre Light to the mixture to highlight the hair.

Step 7. Use a mixture of Manganese Blue and Titanium White to paint the bands on the sleeves and the strokes toward the bottom of the dress.

Step 8. Paint the band at the bottom of the dress and the outline of the sleeves with Mars Black.

Step 9. Dot the sleeves with Old Parchment, and dot the halo with Titanium White.

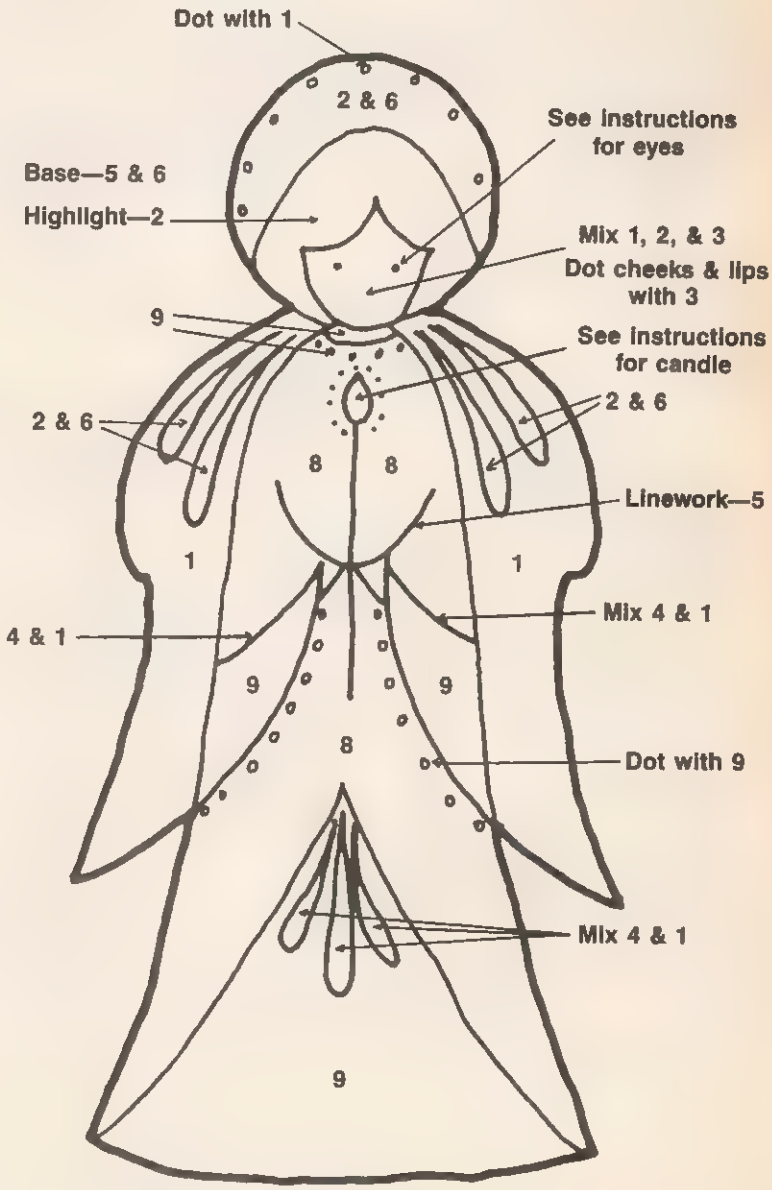
Step 10. Paint the candle Yellow Ochre Light, let dry, then highlight with touches of Titanium White and Grumbacher Red.

Attach the string and felt

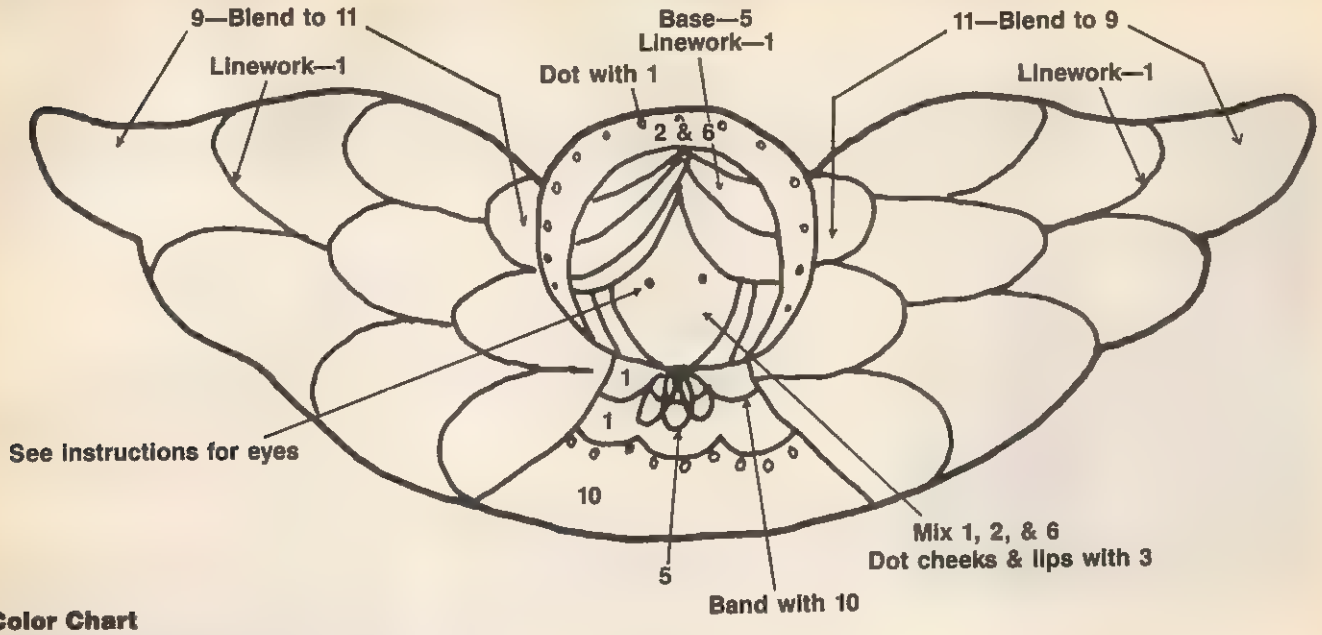
Use the hot glue gun and glue sticks to attach a loop of gold string to the back side of each ornament. Next, cut the felt into circles approximately 1/2" in diameter, and then glue these over the ends of the gold string.

Your Angel Ornaments are ready to fly!

Angel With Candle



Angel With Outspread Wings



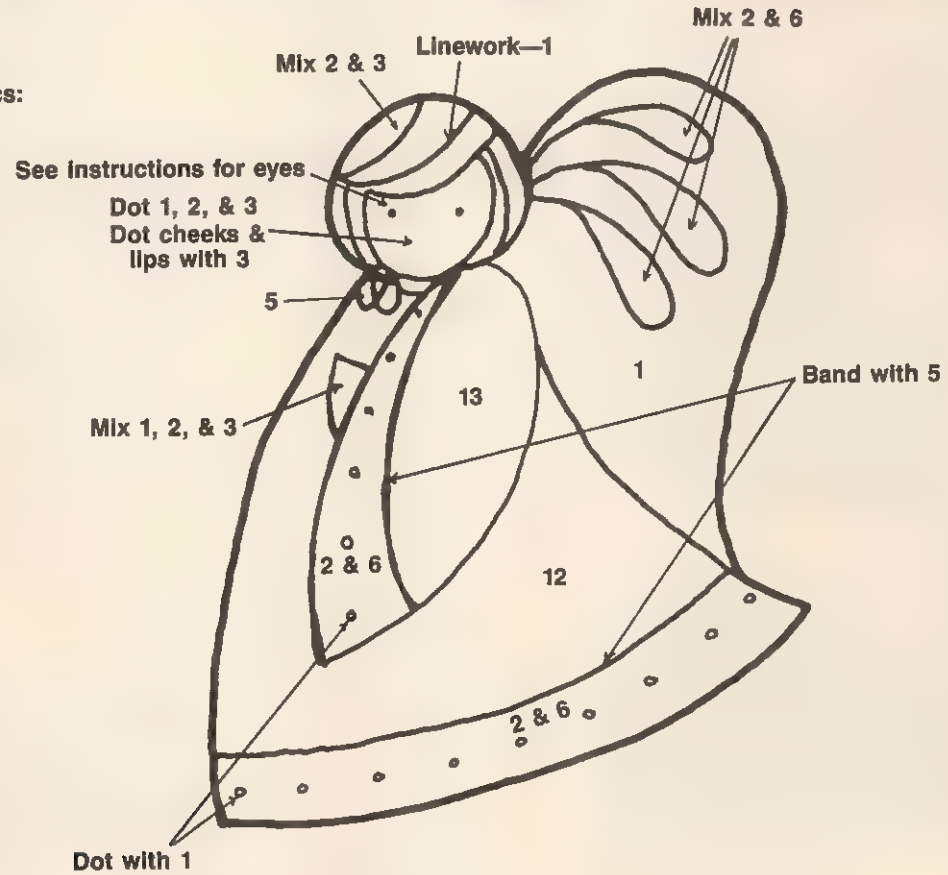
Color Chart

Grumbacher® Artists' Acrylic Tube colors:
1 = Titanium White
2 = Yellow Ochre Light
3 = Grumbacher Red
4 = Manganese Blue
5 = Mars Black
6 = Thalo Gold

Delta® Ceramcoat® acrylics:
7 = Gypsy Rose
8 = Dusty Mauve
9 = Old Parchment
10 = Coral
11 = Maple Sugar

Accent® Country Colors®:
12 = Stoneware Blue
13 = Light Stoneware Blue

Blue Angel



Full Size Patterns

TAOS CANDLEHOLDERS

Project 6

Designed by Andrea Nickerson
(Color photo page 36)

BILL OF MATERIALS (For Two Candleholders)

Part	Description	Size in inches	Quantity
Ponderosa pine:			
A	Candleholder body	1-1/8* x 3 x 10	4
B	Collar	1-1/8* x 1-5/8 x 1-5/8	2
C	Base	1-1/8* x 3 x 3	2

* 5/4 stock used throughout—thickness may vary slightly.

INSTRUCTIONS

Transfer patterns and cut the wood

Transfer the full size patterns to the 5/4 stock and cut all parts to size. Cut out the arrow shapes in the four bodies (A) to create left and right sides. Use a chisel to cut the four decorative notches in each base (C) as shown in the full size pattern.

Chamfer the outside edges of all parts with a chisel. Next, sand each component with both medium and fine grit papers. Referring to the color photo, glue and clamp together the left and right sides of each body (A) and let dry overnight.

Assemble

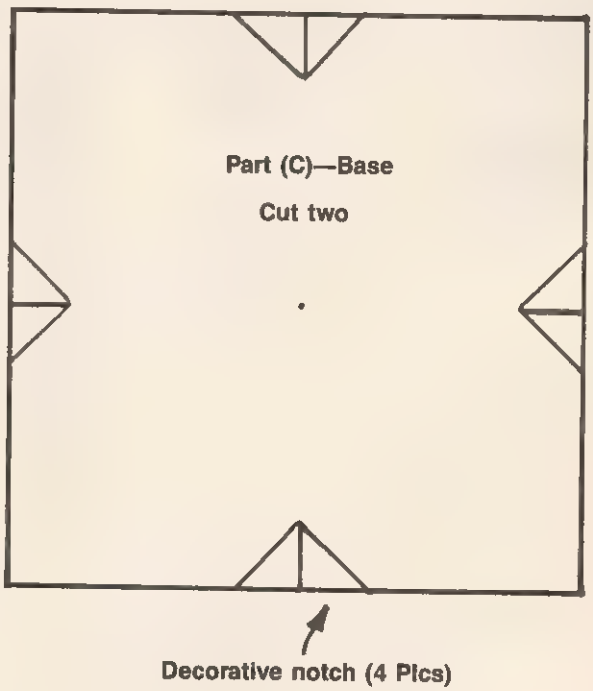
Drill a 7/8"-Dia. x 1/2"-deep hole in the center of both collars—these holes will hold the candles. Referring to the color photo (for position), place the collar on the top edge of the body (A) and drill a hole through the collar's center into the body's top edge. Next, secure the collar to the body by driving a 1-1/2" flathead screw through the collar into part (A).

Drill a centered hole through the bottom of the base (C) into the bottom end of the body. Fasten the base to the body with a 2" flathead screw—as shown in the color photo, the collar and base are positioned so that their outer edges are parallel to each other. Repeat the above assembly procedure for the second candleholder.

Finish

Finish the candleholders with the stain of your choice. We used a dark green stain to finish ours, followed by a coat of acrylic urethane. Once dry, buff all surfaces with fine steel wool until smooth.

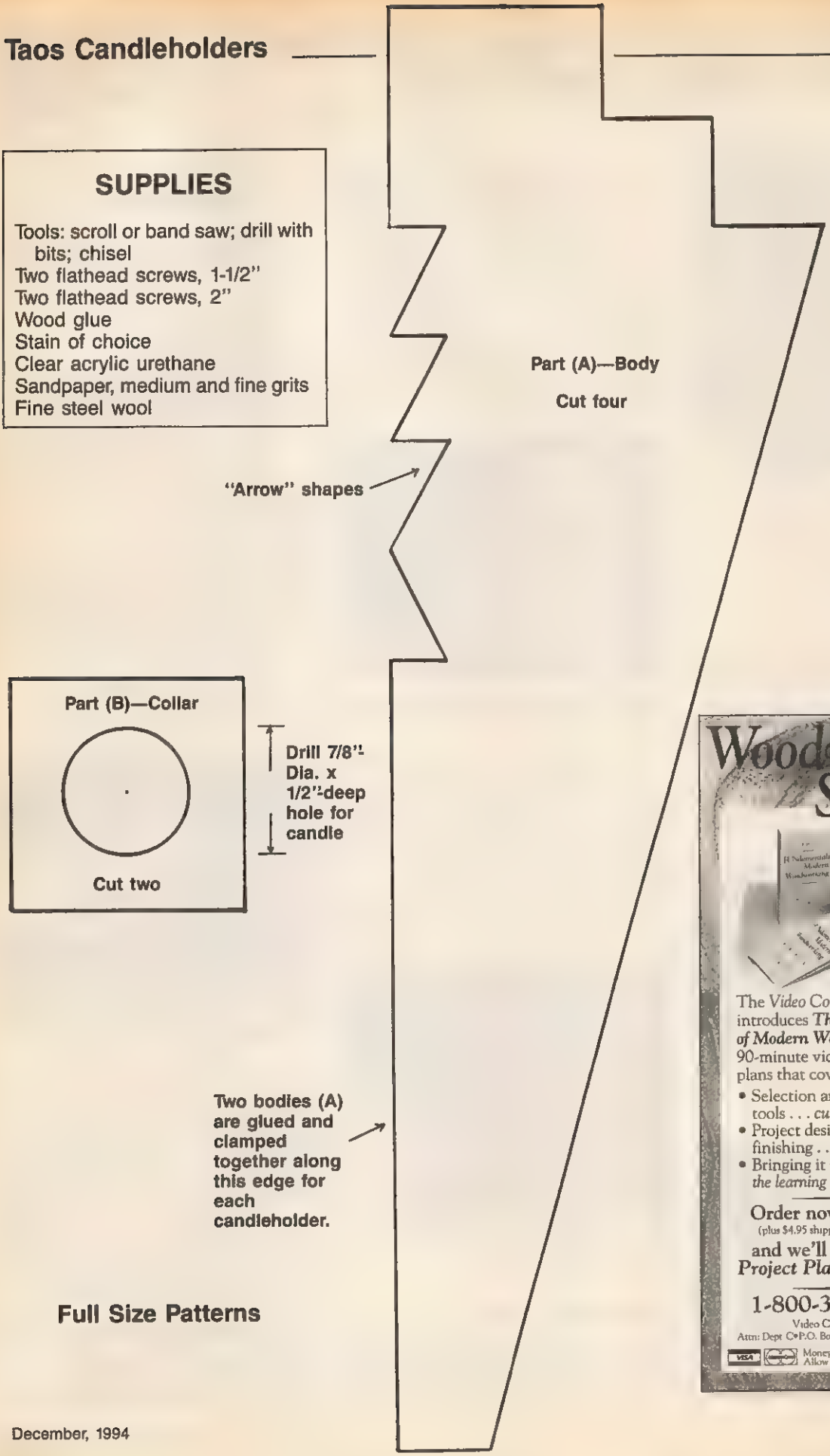
Your Taos Candleholders are ready to use!



Taos Candleholders

SUPPLIES

Tools: scroll or band saw; drill with bits; chisel
Two flathead screws, 1-1/2"
Two flathead screws, 2"
Wood glue
Stain of choice
Clear acrylic urethane
Sandpaper, medium and fine grits
Fine steel wool



Full Size Patterns

TURNED CANDLEHOLDERS Project 7

Designed by Robert E. Belke
(Color photo page 36)

INSTRUCTIONS

Make the base

Cut the base to specified dimensions, and then secure a faceplate to the wood using either double-sided tape or small screws (see **Fig. 1**). **Note:** the beauty of double-sided tape is that it leaves no screw holes to fill. Mount the blank on the lathe and use a bowl gouge to true-up the outer edge to a 5" diameter (see **Fig. 2**).

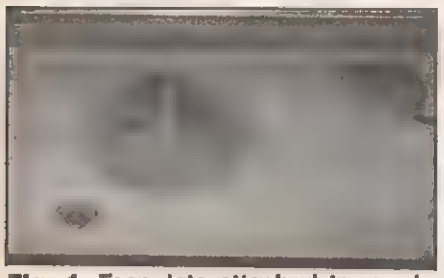


Fig. 1. Faceplate attached to rough-sawn base blank with double-sided tape.

Fig. 2. Turning the base-blank edge to a uniform 5" diameter.

Next, mark the outer edge of base blank 1/4" down from the top face as shown in the Base—Side View drawing. At the location just marked, use a parting tool to make a 1/8"-deep cut, and then finish shaping the outside edge of the blank with a deep-fluted bowl gouge as shown in the drawing. Continuing with the deep-fluted bowl gouge, cut the trough in the top face of the blank as shown in the drawing and **Fig. 3.**

Fig. 3. Top surface of base with trough already cut.

The next step is to bore a 3/4"-Dia. x 1/2"-deep hole in the center of the base. This is best done with a 3/4" Forstner bit mounted in a Jacob's chuck, which can be attached to the tailstock of your lathe (see **Fig. 4**). If a Jacob's chuck is not available, remove the base from the faceplate and bore the hole with a drill press.

Fig. 4. Boring the 3/4" hole in the base with a Forstner bit.

Make the holder

Cut the holder to size and mount it between lathe centers (see **Fig. 5**). Using a roughing gouge, turn the blank to a diameter of 1-3/4" as shown in **Fig. 6.** Next, mark the blank at the following locations: 1/4" down from the top, 3-1/2" down from the first mark, 1/4" down from the second mark, and finally, 1/2" down from the third mark (see **Fig. 7**). If you have measured correctly, the overall length of the blank should be 4-1/2" (see Holder—Side View drawing).

Using the parting tool, make a 1/4"-deep cut located 1/4" down from the top edge of the holder blank. Measure down 3-1/2" from the cut just made and make another 1/4"-deep

SUPPLIES

Wood (for one candleholder): one piece **walnut** (for the base), 1-1/4" x 5-1/4" x 5-1/4"; one piece **cherry** (for the holder), 1-3/4" x 1-3/4" x 4-1/2"
Tools: table saw; lathe with roughing gouge, deep-fluted bowl gouge, skew chisel, beading gouge, and parting tool; drill press with assorted bits, including a 3/4" Forstner bit
Double-sided tape or small screws
Wood glue
Glossy polyurethane
Satin polyurethane
No. 600 wet/dry paper
Brass eyelets (one for each candleholder)—available from Constantine's, 2050 Eastchester Rd., Bronx, NY 10461 (800-223-8087), request Part No. 9908, at $2.75/10 pcs.

Fig. 5. The holder blank is shown mounted between lathe centers.

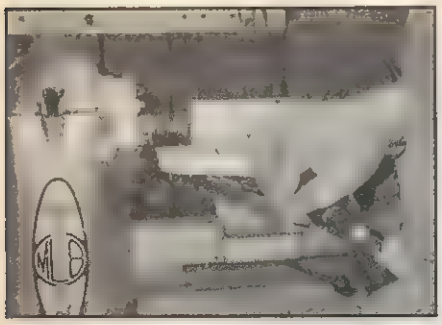


Fig. 6. Using a roughing gouge to turn the holder blank to a cylinder.

Fig. 7. The holder cylinder with dimensions marked on it.

cut. Next, use a gouge or skew chisel to turn the wood between parting cuts to a 1-1/4"-Dia. cylinder (see **Fig. 8**).

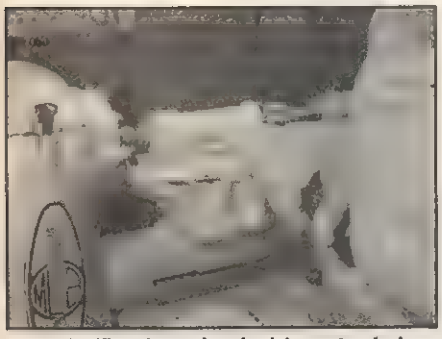


Fig. 8. Turning the holder stock between parting cuts to 1-1/4" diameter.

Referring to the Holder—Side View drawing, mark the 1/2" dimension for the length of the mounting stub at the bottom of the holder. Use a parting tool to cut the mounting stub to 3/4" Dia. (see **Fig. 9**). The mounting stub has to mate with the 3/4" hole bored in the base, and now is a good time to check for that fit. Continuing to refer to the drawing, lay out the 7/8" cove toward the bottom of the holder and use a gouge to cut it as shown

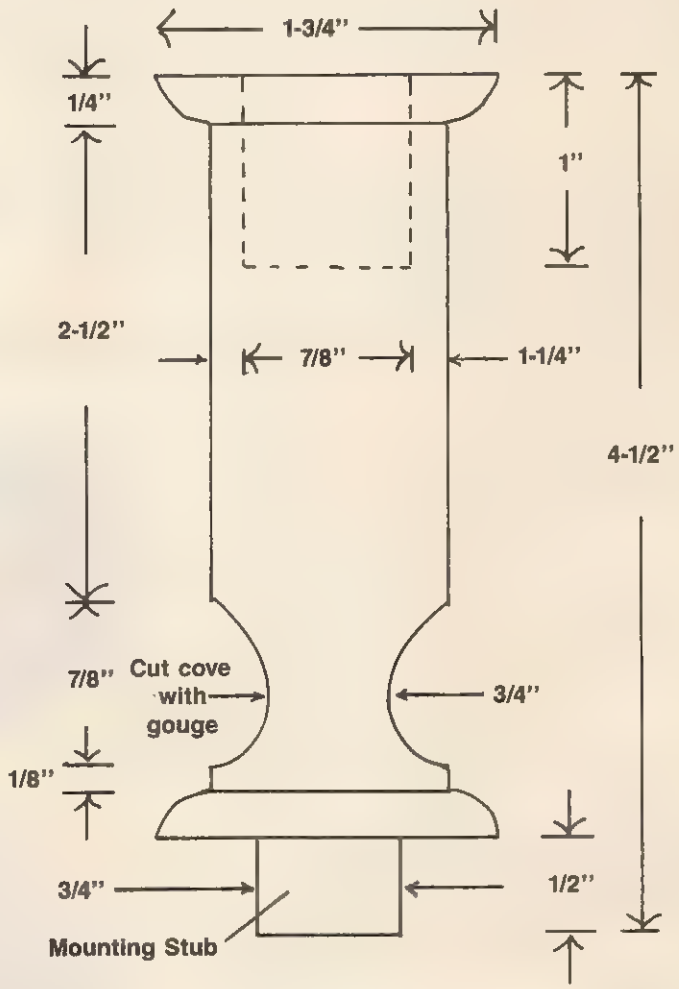
Fig. 9. Beginning to turn the mounting stub down to a diameter of 3/4".

in the drawing and **Fig. 10.** The final shaping procedure is to roll over both the top and bottom 1/4" "lips"—this is

Fig. 10. Cutting the cove toward the bottom of the holder.

done with a 3/8" parting and beading tool (see **Fig. 11**).

Continued on page 39



Holder—Side View

Full Size Candleholder Pattern

Easy Delta PROJECT

Slick Carrot Plant Sticks

with Ceramcoat® Hi-Gloss Enamels

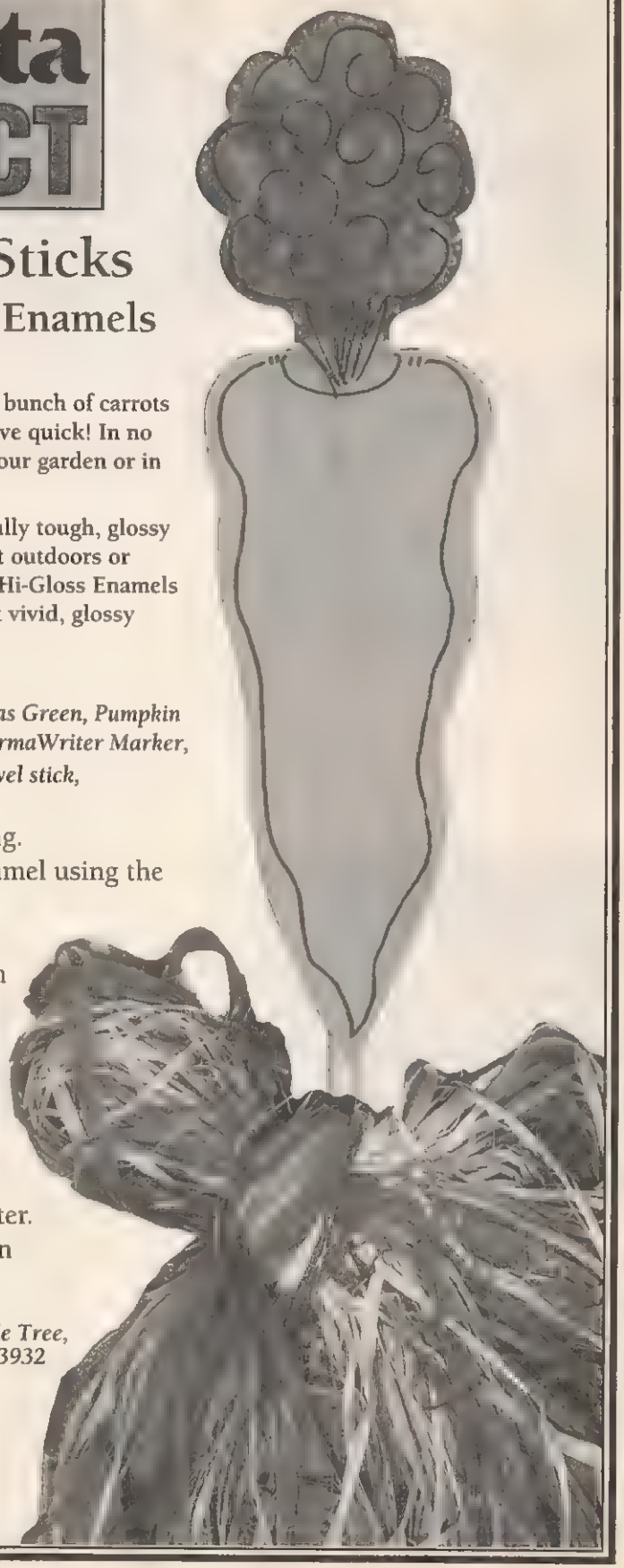
by Dorris Sorensen

Paint on glossy Ceramcoat Enamels for the slickest bunch of carrots around! This is one project that's guaranteed to move quick! In no time, you'll have a fun carrot plant stick to put in your garden or in your home.

Ceramcoat Hi-Gloss Enamels dry quickly with a really tough, glossy finish. That means you can display your work of art outdoors or indoors...the choice is yours! And don't forget that Hi-Gloss Enamels are nontoxic and safe to use...no smelly orders, just vivid, glossy

Supplies:
Ceramcoat® Hi-Gloss Enamels: Green Sea, Christmas Green, Pumpkin small sponge brush, kitchen sponge, 05 Black Niji PermaWriter Marker, carrot wood piece (see Shoppers' Guide) and 3/8" dowel stick, raffia, sandpaper, scissors, water

1. Sand and prepare wood piece for painting.
2. Paint carrot with Pumpkin Hi-Gloss Enamel using the sponge brush.
3. Paint carrot top Green Sea.
4. Pour a small amount of Christmas Green onto paper place. Round off one of the corners of the kitchen sponge with scissors. Dab this end of the sponge into the paint and lightly dab color on top of Green Sea painted area. Let dry.
5. Add outline around carrot about 1/4" in from edge with the Black Niji PermaWriter. Add "curley cues" at random to the green carrot top.



Shoppers' Guide: *CARROT WOOD PIECE - The Tole Tree, P.O. Box 586, Pleasant Grove, Utah 84062, 801-785-3932*
NIJI PERMAWRITER - 490 Eccles Ave., So. San Francisco, CA 94080, 800-262-6454

Delta

Delta Technical Coatings, Inc., 2550 Pellissier Pl., Whittier, CA 90601
800-423-4135, 213-686-0678, fax 310-695-5157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For a FREE project brochure on "How to Create Holiday Treasures with Renaissance Foil," please send a self-addressed, stamped envelope to: Delta Technical Coatings, Inc., Holiday Treasures - Dept. 32084, 2550 Pellissier Pl., Whittier, CA 90601-1505.
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RENAISSANCE FOIL

Delightful Decor

Made from solid cherry, this handsome ***Wine Rack*** *will hold up to sixteen bottles in style. Even when full, the unit is easily moved, thanks to the two convenient hand-holds cut in the side panels. When bottles are placed in the rack, they tilt downward—this keeps the corks moist, thus preventing them from breaking apart when a corkscrew is inserted.*

Our ***Oak Entertainment Center*** *is attractive, sturdy, and quite easy to construct. It will accommodate a large TV plus your VCR, and the roomy drawer below is ideal for storing video cassettes, patch cords, and other essential odds and ends. This project features easy-to-follow plans and requires only the most basic woodworking tools.*

Our ***Lap Desk*** *will prove invaluable for organizing stationery and writing supplies. The lid is made from birch plywood, which provides a nice, smooth writing surface, while the sides are made from easy-to-cut poplar. Box joints are used to fasten the sides together, and we'll show you how to cut these using only a backsaw and chisel. Think how easy writing out this year's Christmas cards will be if you have one of these on hand!*

Woodcrafted Ornaments

Beautify your tree this Christmas with our elegant ***Turned Ornaments.*** *We provide the full size patterns for the three ornaments shown, and also present step-by-step photos to clearly show how each piece is shaped on the lathe. Once you master these ornaments, you'll want to make lots of extras to give as gifts or to sell at craft shows.*

Paint on plywood with acrylics to bring our four ***Angel Ornaments*** *to life. These heavenly ladies will bring you good luck this Christmas as they reside serenely upon your tree. Full size patterns and a color chart make this project accessible to even the novice decorative painter.*

Hot Candleholders

Made from 5/4 pine, our ***Taos Candleholders*** *are simply beautiful. The "negative space" design is created by cutting two identical pieces of wood to shape and then gluing them together edge to edge. A must gift for aficionados of southwestern style. Full size patterns provided.*

Use your woodturning skills to shape these elegant ***Turned Candleholders.*** *Designer Robert Belke provides us with step-by-step photos that clearly show how the components are shaped on the lathe. The use of contrasting hardwoods (walnut and cherry) greatly enhances the charm and beauty of the candleholders.*

How to Order

1. Enclose reorder form or voided check from existing check supply, noting any changes
2. Include deposit slip from existing check supply
3. Enclose your payment check
4. Fill out the order form and mail with items 1, 2 & 3 to:

Designer Checks • PO Box 12966
Birmingham, AL 35202

IMPORTANT: We cannot process incomplete orders. Your order will be mailed to the address printed on your checks unless you specify otherwise. (Please allow 2 to 3 weeks for delivery.) For your protection we accept written orders only. If you have any questions please call 800-239-9222 between 8 am and 5:30 pm CST Mon.-Fri.

AMOCA *American Mail Order Check Associates*

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ORDER FORM

Designer CHECKS
P.O. Box 12966 • Birmingham, AL 35202

❑ Yes! Please send me _____ (check design name)

Start my checks with number _____ (if different from records)

SINGLE CHECKS
- ❑ 1 Box (200) INTRO OFFER: $4.95
- ❑ 2 Boxes (400) $4.95 + $3.95 = $8.90 *Great Price!*
- ❑ 4 Boxes (800) $4.95 + $11.85 = $16.80 *Super Value!*
- ❑ 300 Desk Checks @ $18.95

DUPLICATE CHECKS
- ❑ 1 Box (150) INTRO OFFER: $5.95
- ❑ 2 Boxes (300) $5.95 + $4.95 = $10.90 *Terrific Buy!*
- ❑ 4 Boxes (600) $5.95 + $14.85 = $20.80 *Big Savings!*
- ❑ 300 Desk Checks @ $24.95 AS

Amount for checks	$
Shipping and handling ($1.00 per box)	$
Script type (optional) add $2	$
Alabama residents add 8% sales tax	$
Name & address labels	FREE
In-plant rush (optional) $2.50	$
TOTAL AMOUNT	$

❑ **My check for the total is enclosed.**
❑ **Don't forget my FREE Mailing Labels!**
❑ **My daytime phone#** _____

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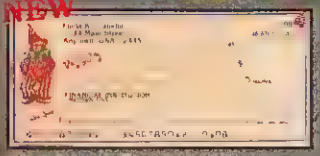
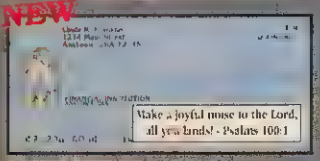
NEW



Wee Care (4 designs)

NEW



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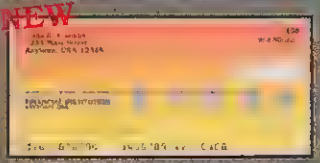

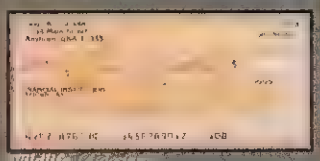

Wildlife (4 designs)

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NEW! Matching Name & Address Labels FREE with Every Order!

Stylish Script Type Available **ONLY $2**

Same name, address & design as your checks

- 192 FREE labels with each set of 200 single checks.
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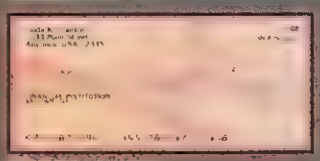
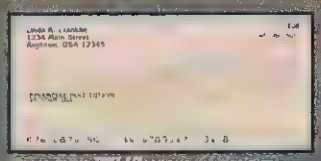
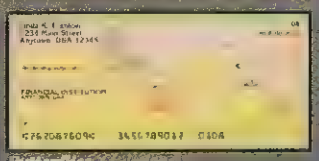
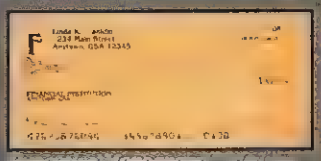
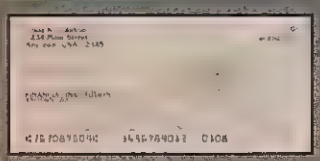
Designer



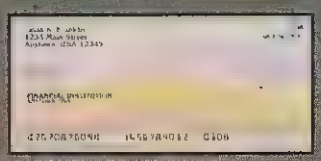




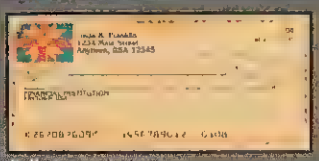




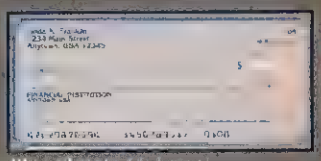
Kittens (2 designs)



Scenic America (4 scenes)



Folk Art (4 designs)



Blue Classic (1 design)

Christmas Specials

Presented for your woodcrafting pleasure are two distinctive Christmas sleighs—a ***Victorian Sleigh*** *(above) and a* ***Hardwood Sleigh*** *(below). Full size patterns are provided for both projects and either of them would make a terrific Christmas gift this year.*

The Victorian Sleigh will undoubtedly delight scroll sawyers everywhere, while the Hardwood Sleigh is distinguished by its instructions—over 25 photos are used to illustrate every single step of the construction process. We're excited about this pictorial approach to project instructions and, since we're planning on using it more in the future, we welcome your feedback as to its effectiveness.

 Continued from page 29

Fig. 11. The holder, turned to shape, ready to have the waste removed.

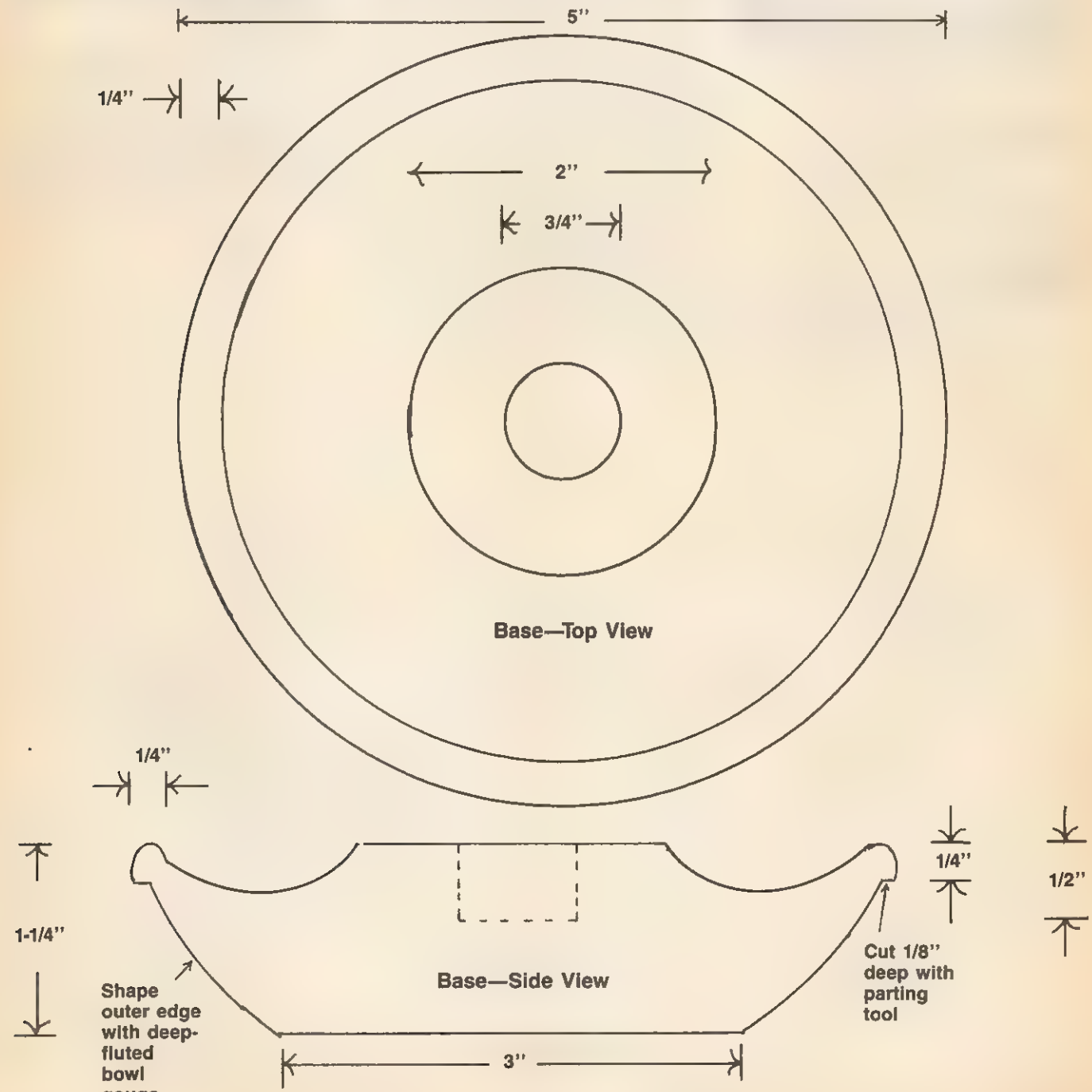
Sand the holder and remove it from the lathe. Referring to the Holder—Side View drawing, bore a 7/8"-Dia. hole in the top—this hole will accommodate the brass candle eyelet, which is the last part to be installed (after finishing).

Assemble and finish

Finish-sand both the base and holder and then glue the two parts together.

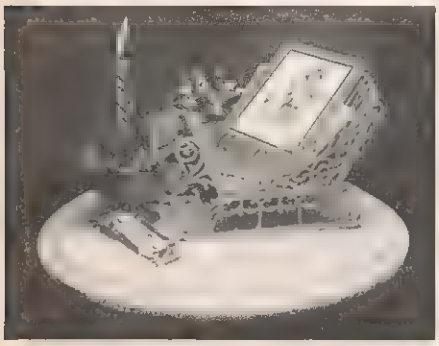
Apply one coat of glossy polyurethane, followed by two coats of satin polyurethane. Sand lightly between coats with No. 600 wet/dry paper, and let dry.

Push the brass eyelet into the candle hole, being careful to evenly distribute the pressure—uneven pressure can cause the holder to split. Insert a candle in each holder, and your lovely Turned Candleholders are ready to use!



Full Size Candleholder Patterns

VICTORIAN SLEIGH Project 8



Designed by Wildwood Designs
(Color photo page 38)

INSTRUCTIONS

Transfer patterns and cut wood

Referring to the "Scroll Sawing Basics" article in this issue, affix the full size patterns to the wood. Using a scroll saw, cut out the parts, remove the patterns from the wood, and sand lightly with 180 grit (or finer) paper. Be sure to cut the bevels on the front and rear edges of the sleigh's bottom as shown in the full size pattern.

Assemble and finish

Referring to the Assembly and Exploded View drawings, assemble the five components of the sleigh, securing them to each other with glue. Clamp and let dry. **Option:** if desired, 3/4" wire brads can be used to further secure the glue joints—if brads are used, do so as inconspicuously as possible.

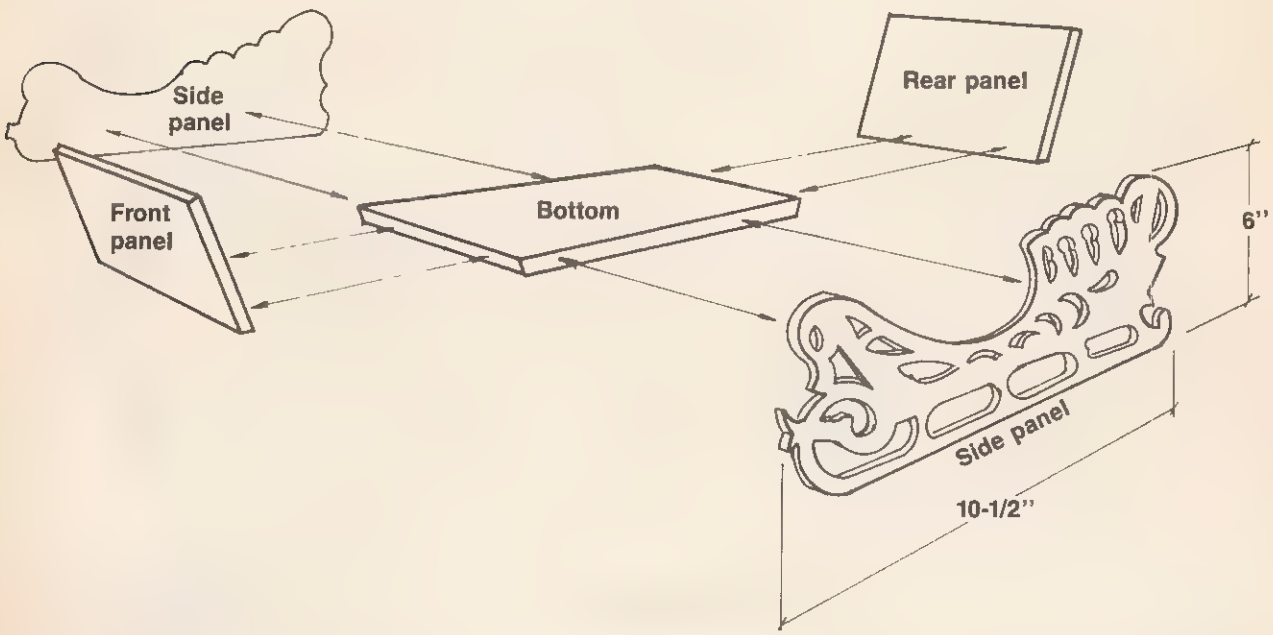
Apply a Watco-oil finish to all surfaces, let dry, and your Victorian Sleigh is ready to be displayed.

To order other fretwork patterns, specialized blades, and related supplies, see Wildwood Designs in our Source of Supply list, and turn to their advertisement on page 13 of this issue.

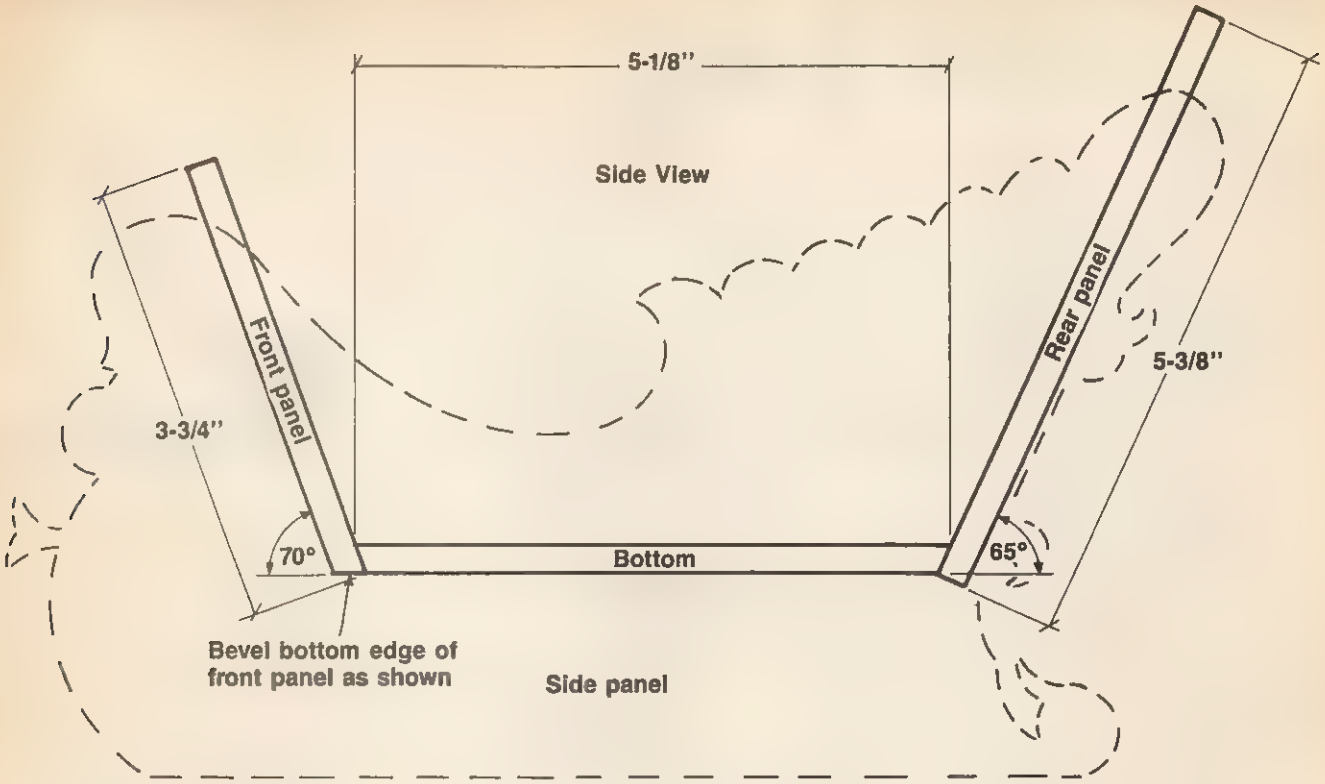
SUPPLIES

Wood: 1/4" thick **oak plywood***
Tools: scroll saw; drill with bits
Wood glue
Clamps
Sharp knife or file
Temporary-bond spray adhesive*
Backer board
3/4" wire brads (optional)
Sandpaper, 180 grit or finer
Watco® oil (or stain of choice)

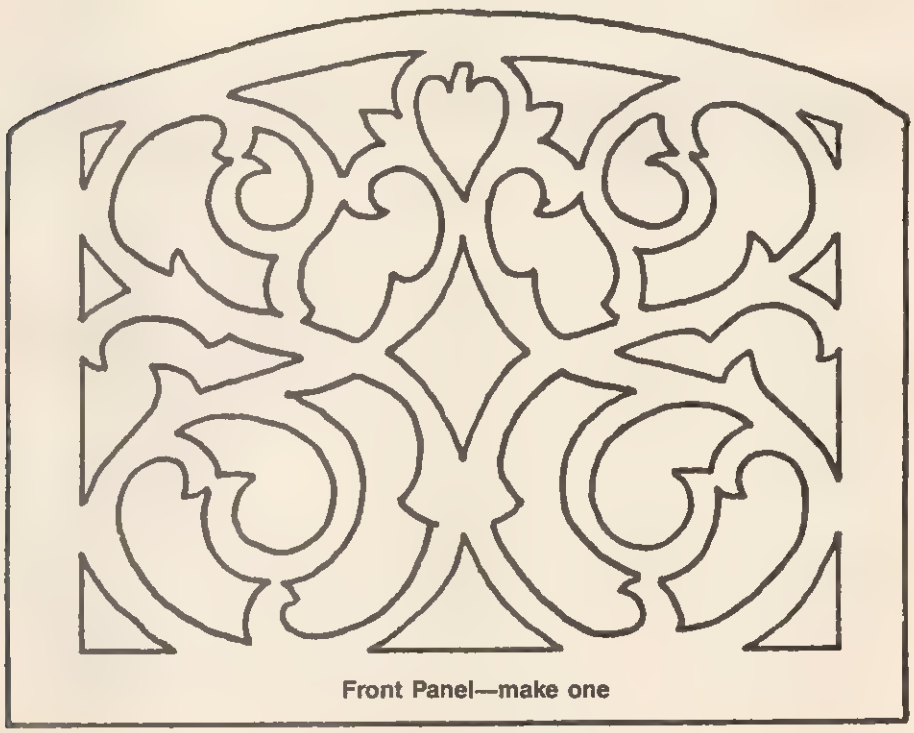
* Available from Wildwood Designs, PO Box 661, Richland Center, WI 53581 (608-647-2777).



Exploded View

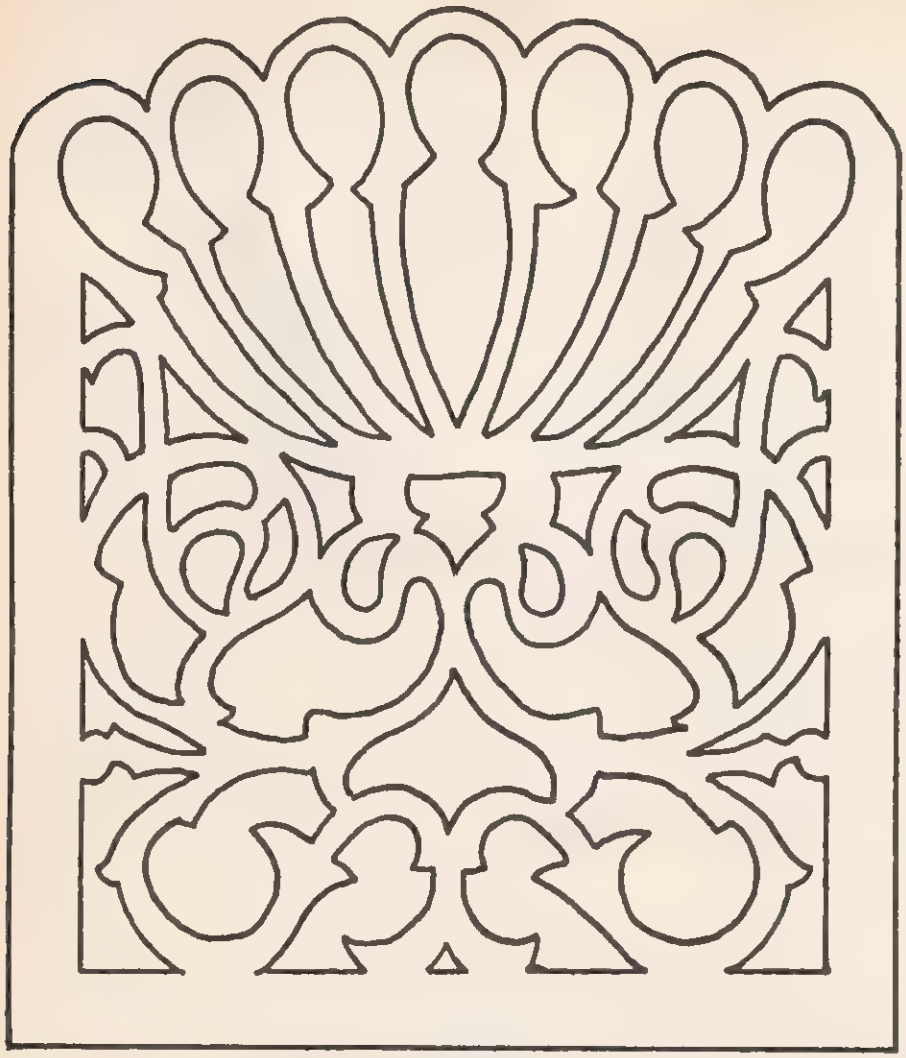


Assembly Drawing



Full Size Pattern

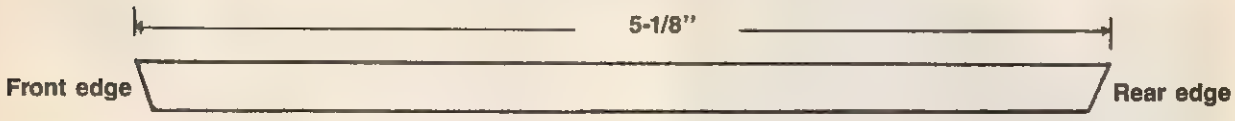
Continued on page 42



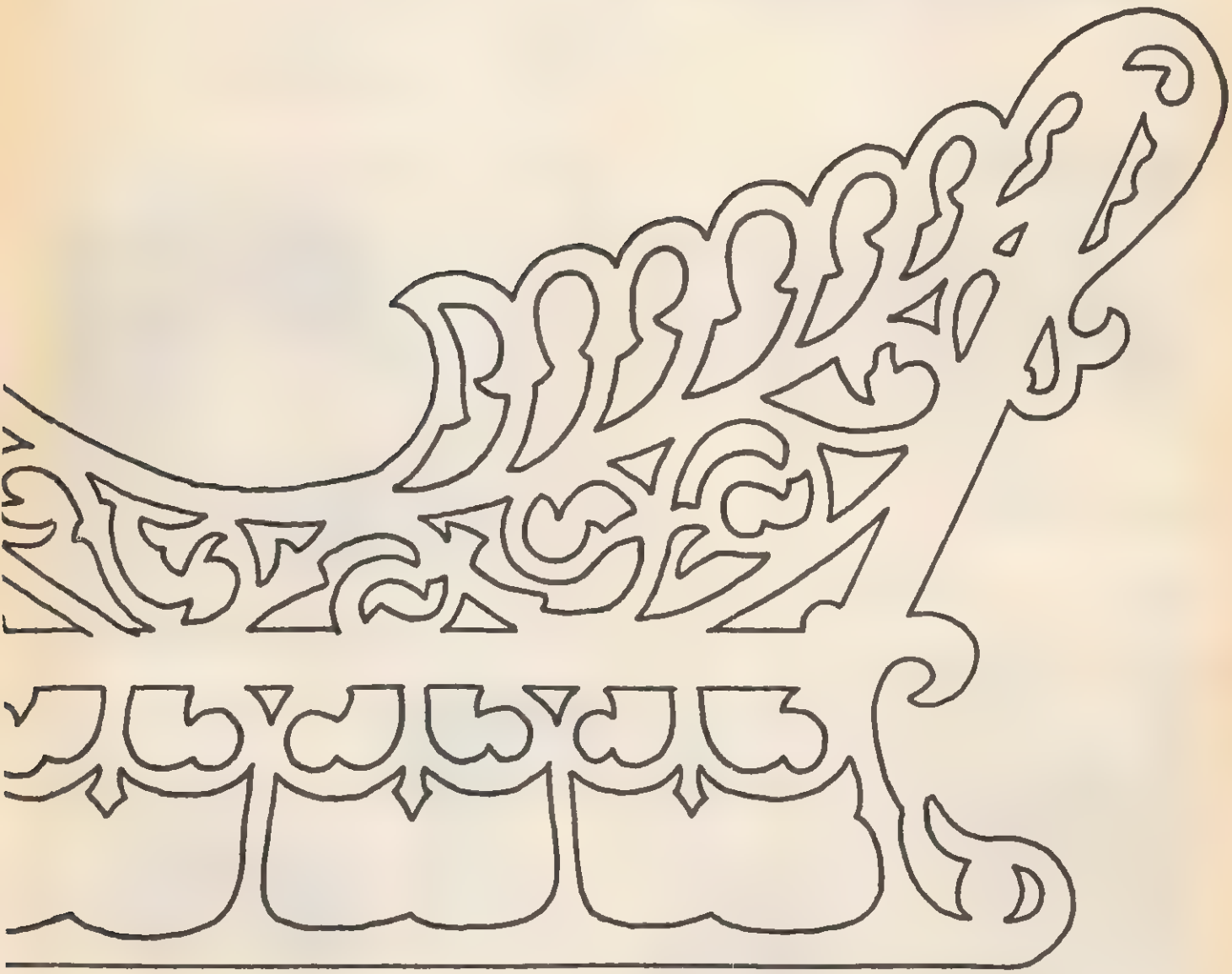
Rear Panel—make one

Full Size Patterns

Note: bottom panel is 4-5/8" wide x 5-1/8" long (width of bottom panel is same as width of front and rear panels).



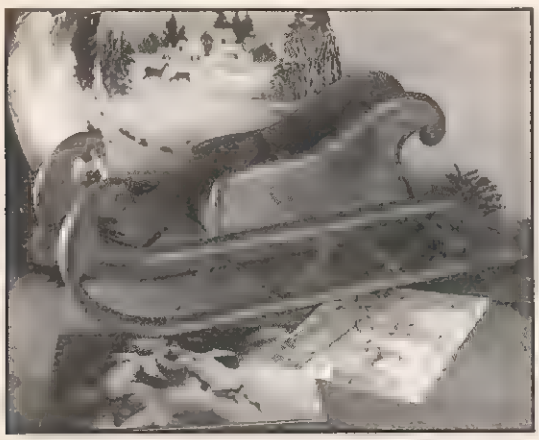
Side View Of Bottom Piece—make one



Side Panel—make two

HARDWOOD SLEIGH

Project 9



Designed by Lavon B. Smith
(Color photo page 38)

SUPPLIES

Tools: table saw or radial arm saw; drill with bits; scroll saw; file; router with 1/4" rounding-over bit; electric finish sander; band saw; belt sander
3/16" doweling—2 pieces x 4" long ea.
Tracing paper
Carbon or graphite paper
Garnet paper, assorted grits
Sanding block
Brown stick chenille, 6 pieces x 12" long ea. (available at most craft stores)
Hot glue gun with glue sticks
7/8" sheetrock screws
Twelve wire brads, 1" No. 17
Eight panelling nails, 1-1/4" long (walnut colored)
Wood glue
Polyurethane semigloss spray finish

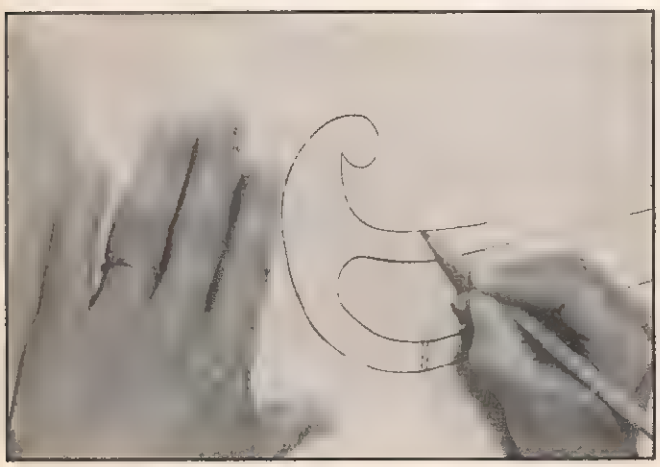
INSTRUCTIONS

Introduction

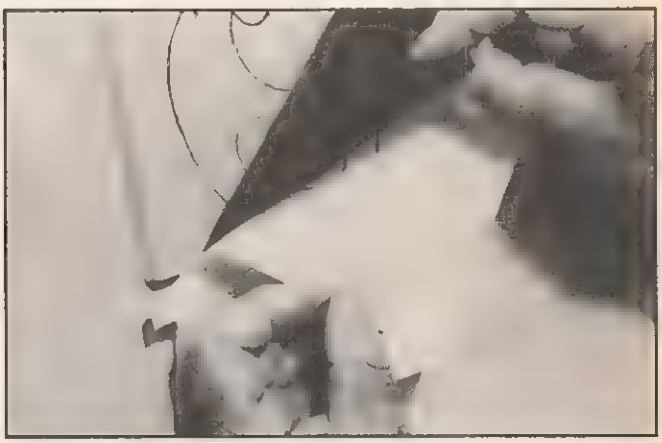
For your convenience, this project is presented in a step-by-step format with *photography*, rather than words, as the primary means of instruction. Of course, full size cutting patterns are also provided. Let us know if you find this type of presentation effective—if so, we will use it more in the future. Please send your comments to Robert A. Becker, c/o Creative Woodworks and Crafts, 243 Newton-Sparta Road, Newton, NJ 07860.

Make the runners

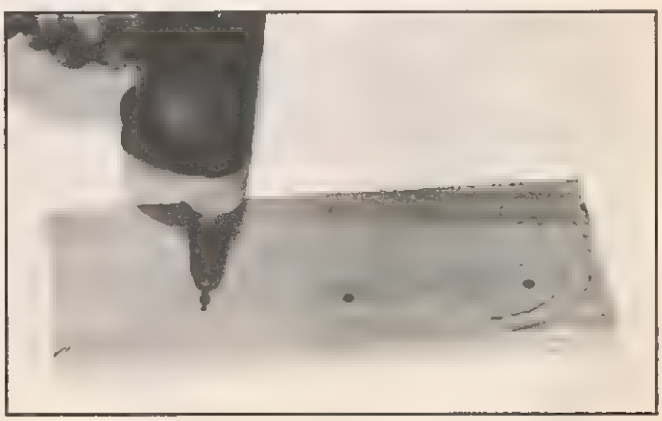
Step 1—Transfer the full size runner (A) pattern onto the tracing paper.



Step 2—Using carbon or graphite paper, transfer the pattern to one of the 1/2"-thick walnut boards.



Step 3—Drill 3/16"-Dia. holes in the waste area of the runner outline and fasten the two 1/2"-thick walnut boards together with 7/8" sheetrock screws.

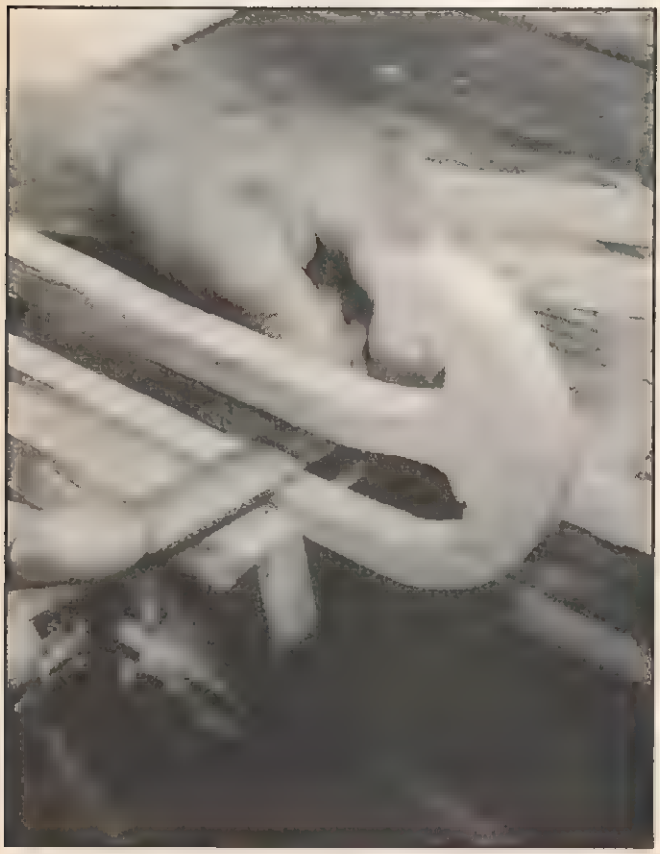


BILL OF MATERIALS—

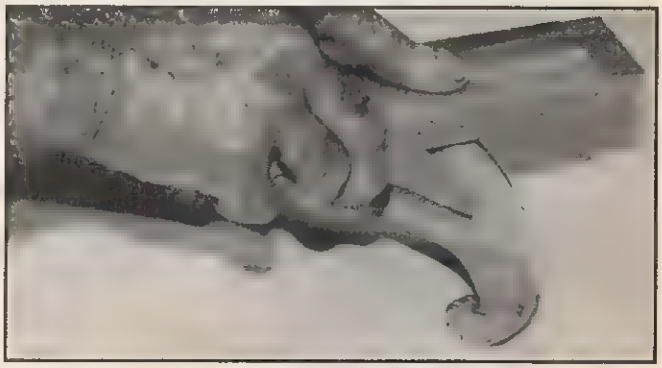
Part	Description	Size in inches	Material used	Quantity
A	Runners	1/2 x 4-3/4 x 15	Walnut	2
B	Seat sides	1/4 x 3-1/2 x 7-1/2	Walnut	2
C	Seat	2-1/2 x 2-3/4 x 5-1/2	Wood of choice	1

Step 4—Using a scroll saw, cut both runners to shape at the same time.

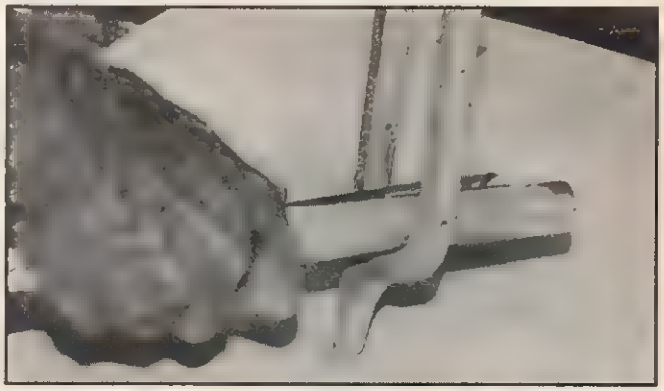
Step 5—File all edges smooth.



Step 6—Sand the straight edges and curved outside edges with a sanding block.



Step 7—Using garnet paper wrapped around a cylindrical object (such as a short section of pipe), sand the inside curves.



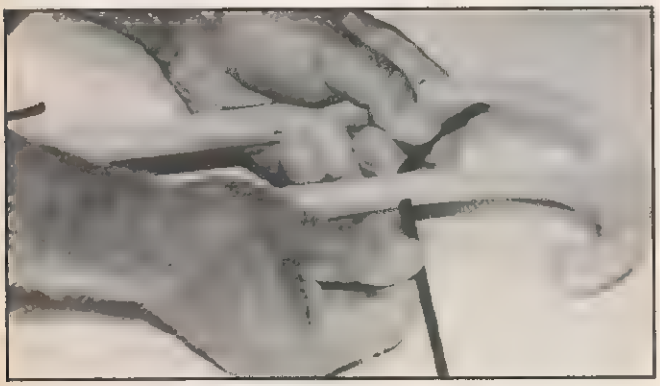
Step 8—Using a 1/4" rounding-over bit, rout along the edges of each runner that will face outward after assembly—designate one runner "left" and one "right." Do not rout the edges that will face inward.

Continued on page 46

Step 9—Referring to the full size runner pattern, locate and drill the 3/16" holes through the edges—these holes will accommodate the stick chenille.

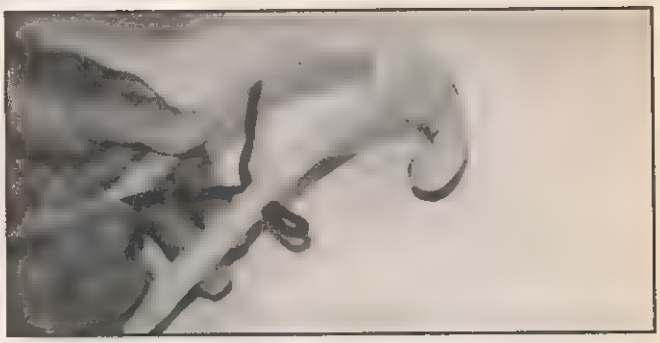
Step 10—Fine-sand all surfaces.

Step 11—Starting at the bottom front of the runner, thread the chenille through the holes as shown in the photo.



Step 12—Double back with the chenille and place the threading end back through the same hole.

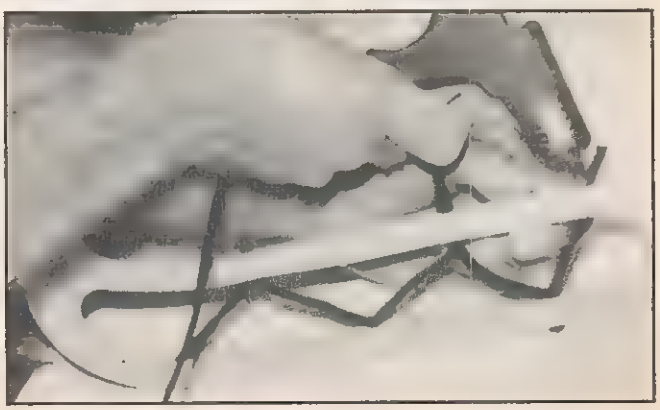
Step 13—Pull the loop down until it is flush with the top of the hole.



Step 14—Secure the chenille with hot glue.

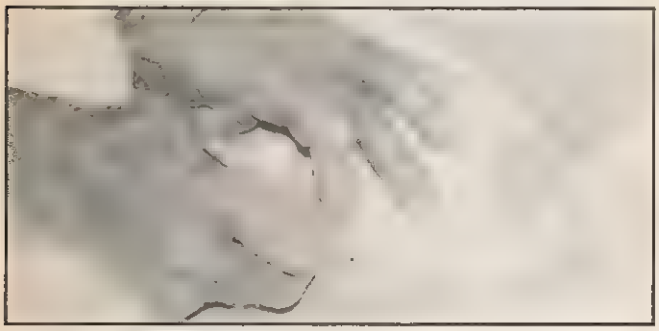
Step 15—To splice chenille, place the end of the new piece in a hole alongside the old piece and glue in place.

Step 16—Continue threading the chenille in a crisscross fashion, gluing each joint as it is completed.



Make the seat assembly

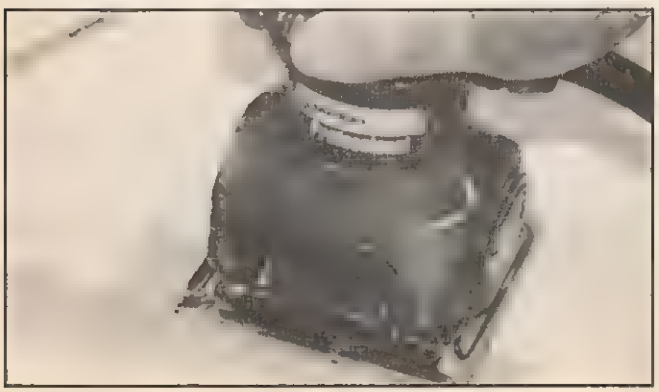
Step 17—Transfer the pattern for the seat sides (B) to the 1/4"-thick walnut stock.



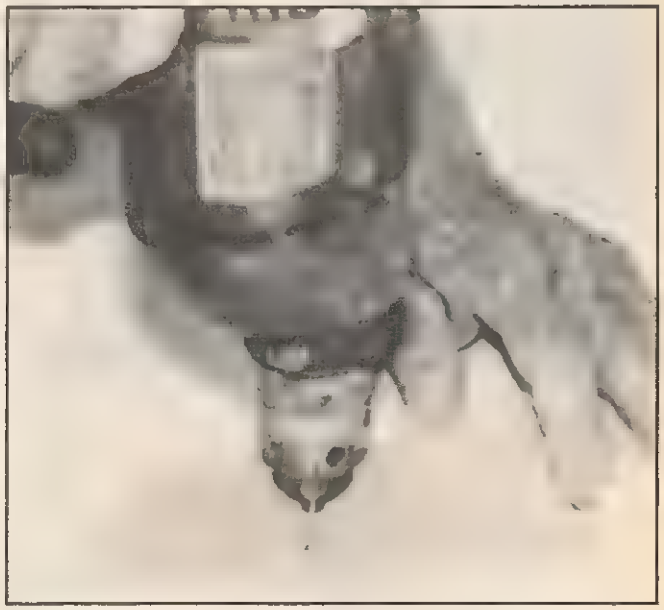
Step 18—Cut the sides (B) to shape with a scroll saw.

Step 19—Sand all edges smooth—wrap garnet paper around a cylindrical object to sand the curved edges.

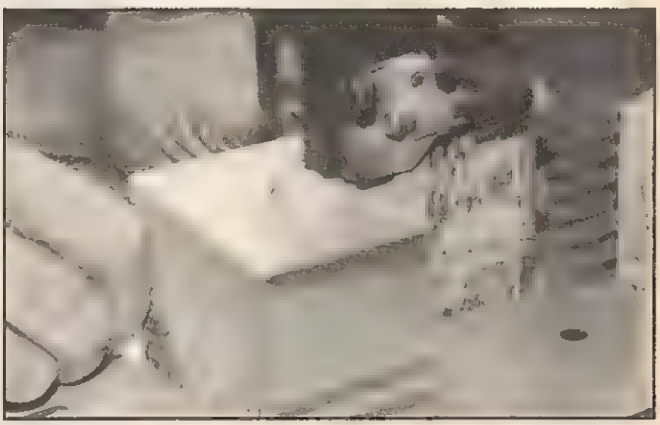
Step 20—Fine-sand all surfaces.



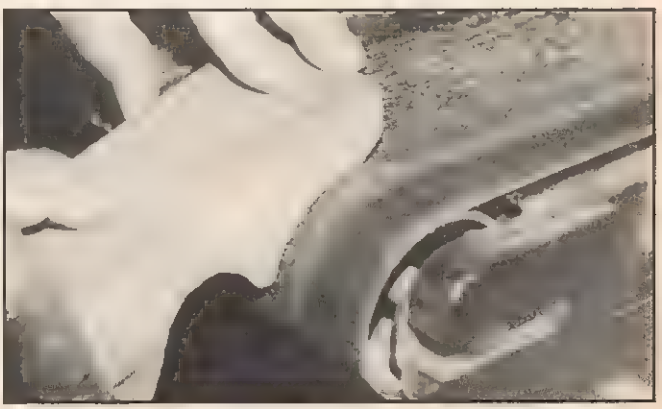
Step 21—Referring to the full size pattern for the seat sides (B), drill the 3/16"-Dia. hole in the swirl, and then drill the 1/16"-Dia. holes along the bottom edge of each piece (B).



Step 22—Transfer the seat (C) pattern to the wood and cut to shape with a band saw.



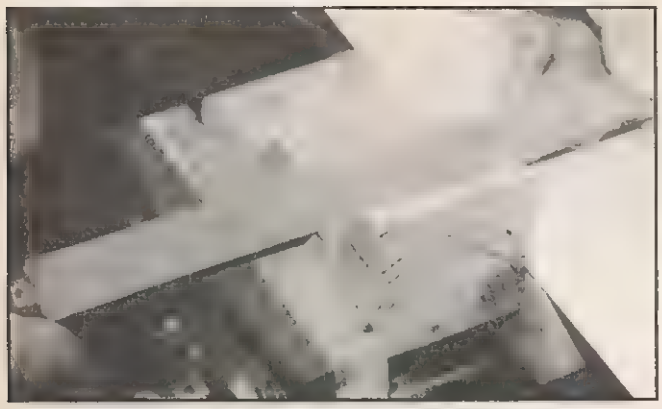
Step 23—Sand all accessible surfaces of the seat (C) with a belt sander.



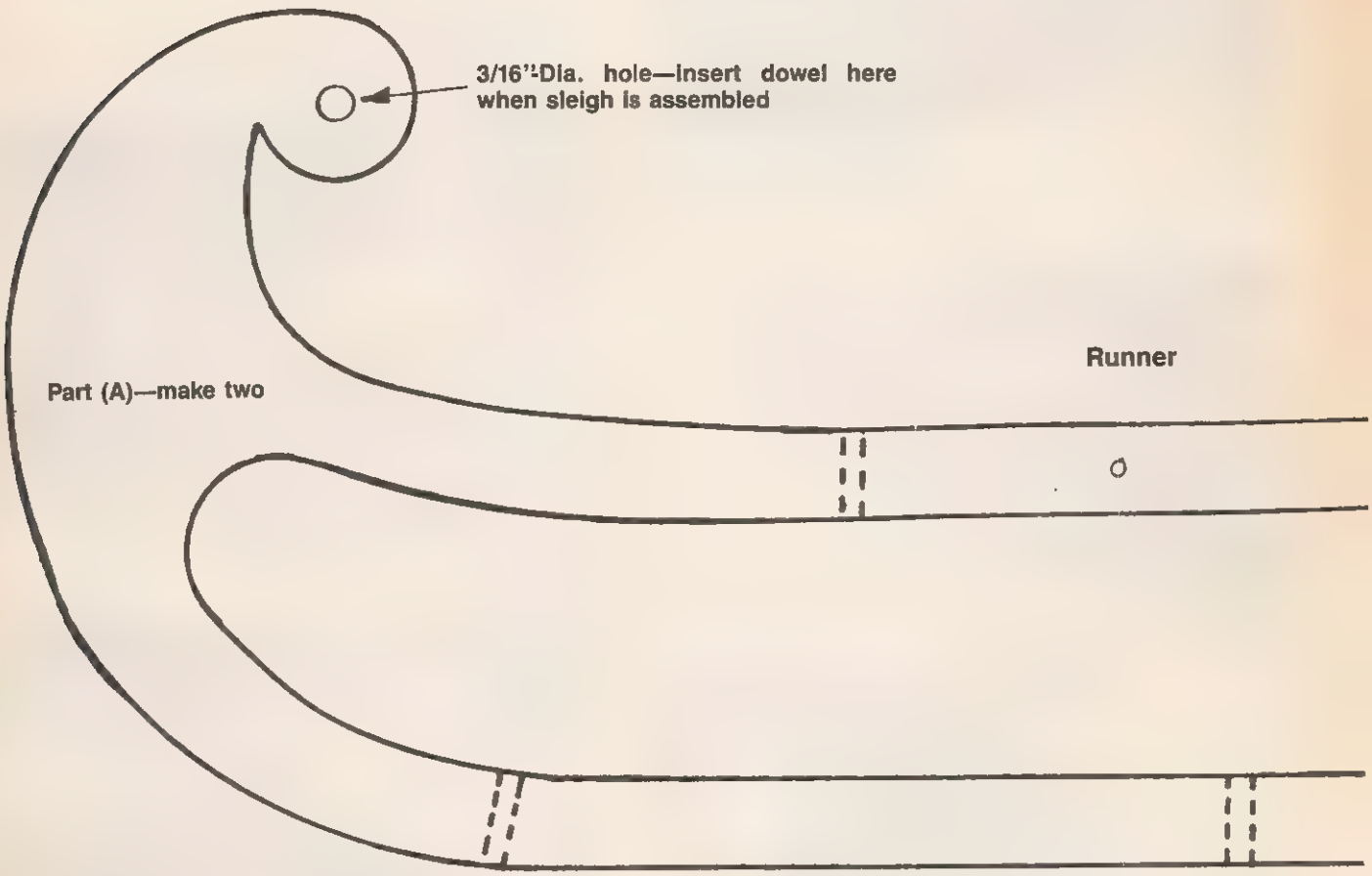
Continued on page 48

Hardwood Sleigh *Continued from page 47*

Step 24—Use a wood file and then garnet paper to smooth all surfaces that were not accessible to the belt sander.



Step 25—Attach the seat sides (B) to the seat (C) with 1" No. 17 wire brads.



Step 26—Attach the runners (A) to the seat assembly (parts B and C) with glue and 1-1/4" panelling nails.

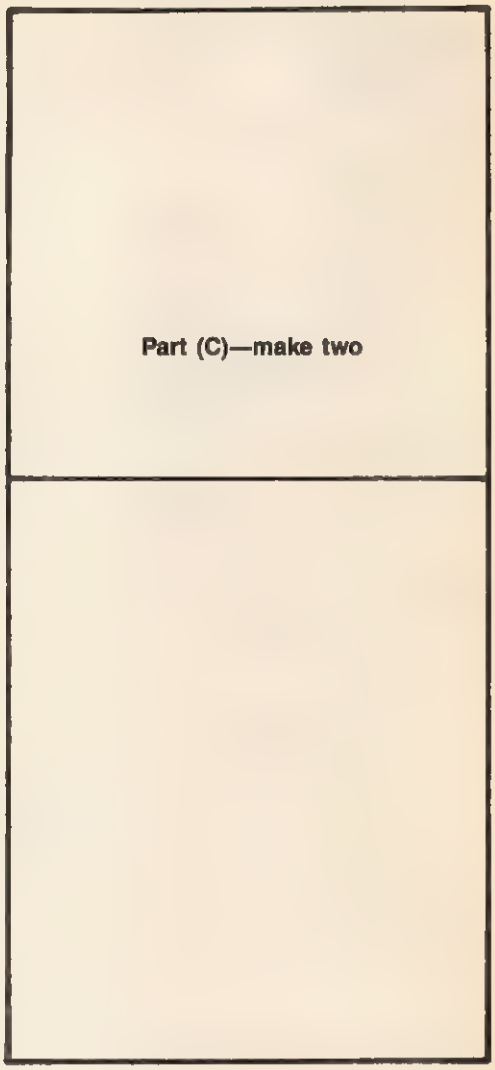
Step 27—Referring to the full size runner pattern, cut two pieces of 3/16" doweling to fit between the runners, and then glue them in the 3/16"-Dia. holes cut earlier.

Step 28—Fine-sand all surfaces as needed, then apply two coats of polyurethane as per the manufacturer's directions.

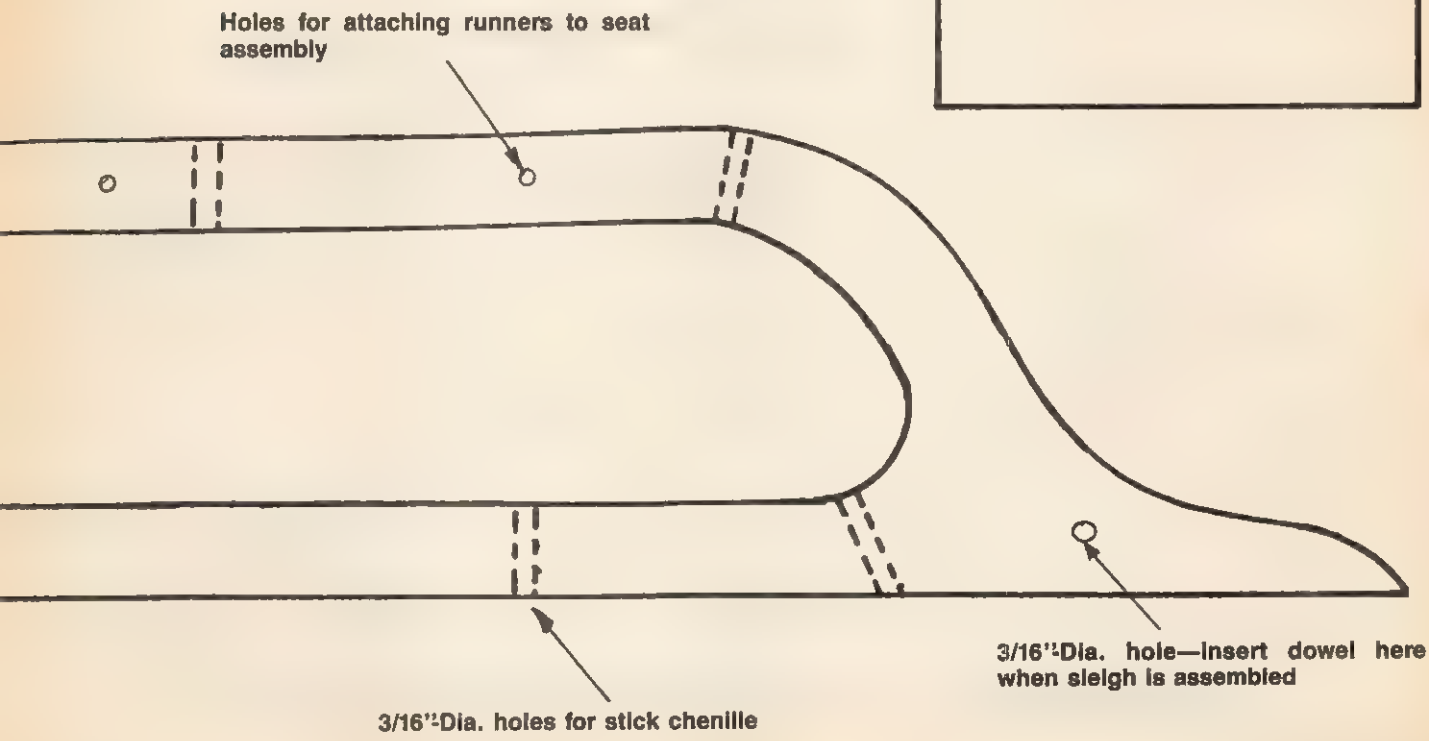
Your Hardwood Sleigh is ready to display!

For information on ordering two outstanding woodworking books authored by Lavon B. Smith, see our Source of Supply list.

Seat Top View



Full Size Patterns



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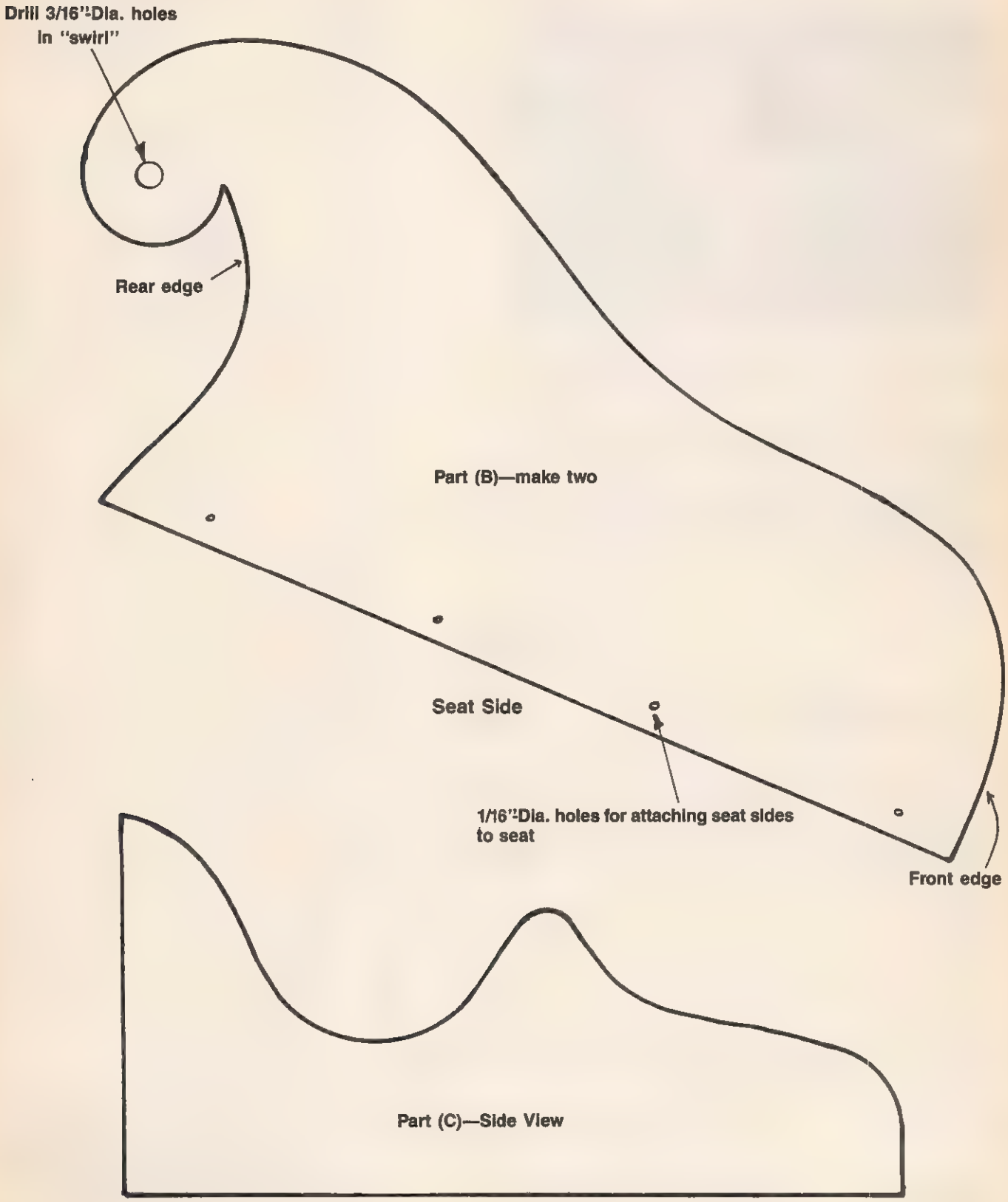


MOOSE-ICAL CHRISTMAS Project 10

Designed by Crafter's Mart
(Color photo page 67)

SUPPLIES

Wood: one piece **pine,** 3/4" x 10-1/4" x 15-3/8" (for the head), and one piece **plywood,** 3/8" x 5-1/4" x 20-1/2" (for the antlers)
Tools: band saw, jigsaw, scroll saw or coping saw; drill with bits; wood rat-tail file and/or rasp; 3/4" or 1" drum sander; stapler (office style)
Duct tape (optional)
Carbon paper
Square
Sandpaper, assorted grits
Wood glue
Clamps
Wood sealer
Paintbrushes
Acrylic spray sealer
Acrylic paint: Brown, Red, Tan, and White
Electronic music box (with flashing red light)*
Two 24mm x 35mm plastic eyes*
One 2-1/4" wooden-ball knob (for nose)*
Six 1" gold jingle bells*
Six 1/2" gold screw eyes*
Mounting pad for music box (adhesive, coated both sides)—this is for surface-mounted music box option*
2" white pompom*
Die-cut 3/4" wood letters*
"Merry Christmas" wood plaque*
Two sawtooth hangers*

* Available from **Crafter's Mart;** for ordering information see Source of Supply list.

INSTRUCTIONS

Introduction

There are two options for mounting the music box in this project. One method is to surface mount it, and the other is to flush-mount the box. Instructions for both alternatives are provided below.

Note on material selection: while the Supplies list specifies pine for the head, any clear, light-colored wood will suffice, since all visible surfaces will be painted. Your primary concern in choosing the wood is to avoid knots and other surface defects.

Make the parts

Enlarge the gridded patterns (for the head and antlers) shown in Drawing No. 1 to full size. Transfer the head pattern to the 3/4" stock and the antler pattern to the 3/8" plywood, then cut both parts to shape.

Using a file, rasp, and/or sandpaper, smooth the sawn edges. Thoroughly sand the front surfaces of both parts, then round over all front edges with sandpaper.

Next, drill a 5/16" hole through the center of the wooden-ball knob and through the head where shown in the pattern.

Install the music box

As previously mentioned, there are two methods for mounting the music box—surface mount or flush mount.

Surface mount—Saw a notch approximately 3/32" wide in the location shown in Drawing No. 1. During music box installation, this notch will be used to feed the wires through the 3/4" wood to the back side of the head. A double-faced adhesive mounting pad is used to attach the music box to the wood (see assembly instructions).

Flush mount—Drill a 1"-Dia. hole through the head at the location shown in Drawing No. 1. Then, use a 3/4" or 1" drum sander to increase the hole's diameter so that the music box fits very snugly inside (friction fit). **Tip:** mark a concentric 1-3/8" circle around the perimeter of the drilled hole *prior* to sanding—this will ensure that you do not enlarge the hole too much. If, however, you do find that you've expanded the hole excessively, the music box can usually be secured in place by inserting wooden toothpicks in the space between the music box and the wood. Another remedy for an oversize hole is to wrap the exterior circumference of the music box with masking tape until a friction fit is attained.

Paint the wood

First, seal the wood with the wood sealer. Next, paint the front surfaces and edges as shown in Drawing No. 2. Two or more coats of each color will be required. If desired, instead of using the wood letters or plaque, you can paint the words "Moose-ical Christmas" and "Merry Christmas" directly onto the wood.

Once the paint has completely dried, apply two or more thin coats of acrylic spray sealer.

Assembly

Glue the antlers to the head as shown in Drawing Nos. 2 and 3, then attach one sawtooth hanger to the rear of each antler. Next, drill pilot holes and install the screw eyes for the six jingle bells in the locations shown. Open the screw eyes and attach the bells.

Glue the wooden-ball knob to the moose's face, making sure to align the two 5/16"-Dia. holes drilled previously.

Continued on page 52

Moose-ical Christmas *Continued from page 51*

Disconnect the electric wire from the music box at the plastic disconnect. Do this by pulling and rocking the connection as necessary to separate it. Next, feed the plastic end (with the light bulb) through the 5/16" hole in the nose. Pull the light bulb flush with the surface of the nose and secure it in the position shown using an office-type stapler or duct tape on the back side of the wood (see Drawing No. 2). Install the plastic eyes at the locations shown either by drilling for the plastic studs or by cutting the studs off and gluing the eyes in position.

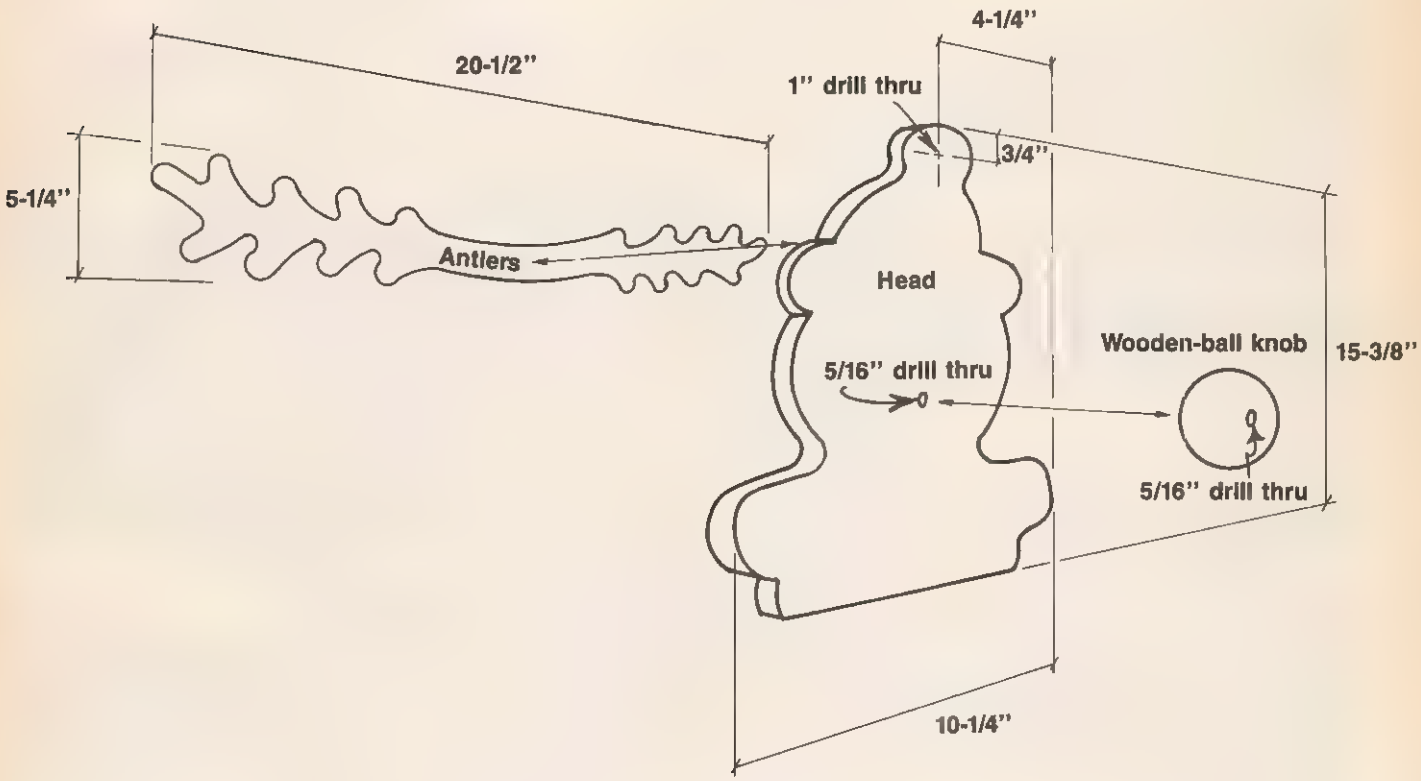
If you have chosen to surface-mount the music box, first remove the backing from each side of the mounting pad, then attach one side of the pad to the center of the music box's back side. Feed the wires through the sawn notch, pulling them tight as you attach the other side of the mounting pad to the wood surface in the location shown. Now, reconnect the plastic disconnect and secure the insulated wire to the back of the moose's head using staples or duct tape.

If you have chosen to flush-mount the music box, feed the wires through the large hole drilled previously, then insert the music box in the hole. Reconnect the plastic disconnect and secure the insulated wire to the back of the neck and head using staples or duct tape.

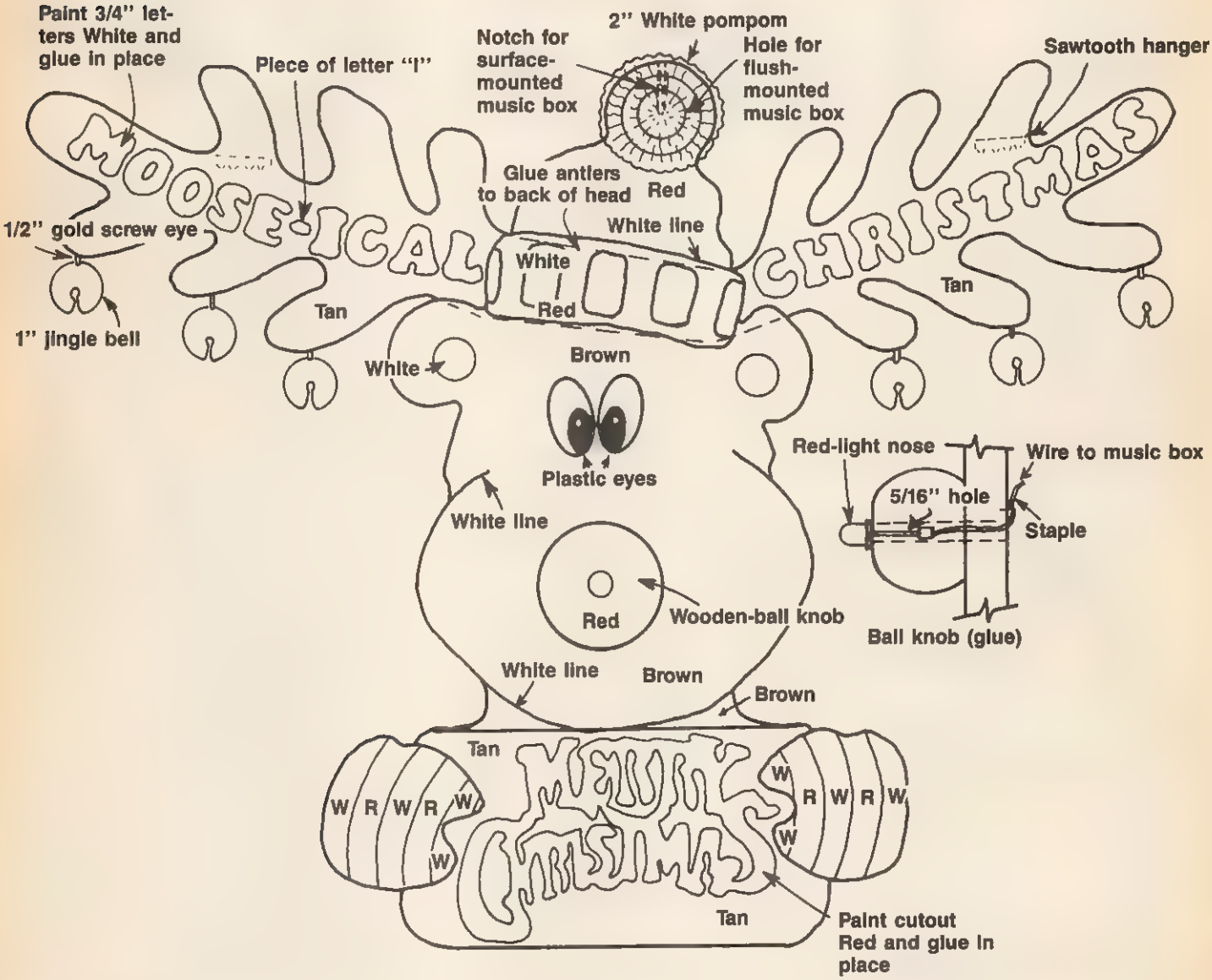
Glue the die-cut letters and wood cutout in place and then glue the white pompom to the metal face of the music box.

To activate the music box and flashing light, just push the pompom.

To order this project in kit form, see Crafter's Mart in our Source of Supply list, and for information on ordering other fun kits from Crafter's Mart, see their advertisement on page 11 of this issue.



Drawing No. 3—Exploded View

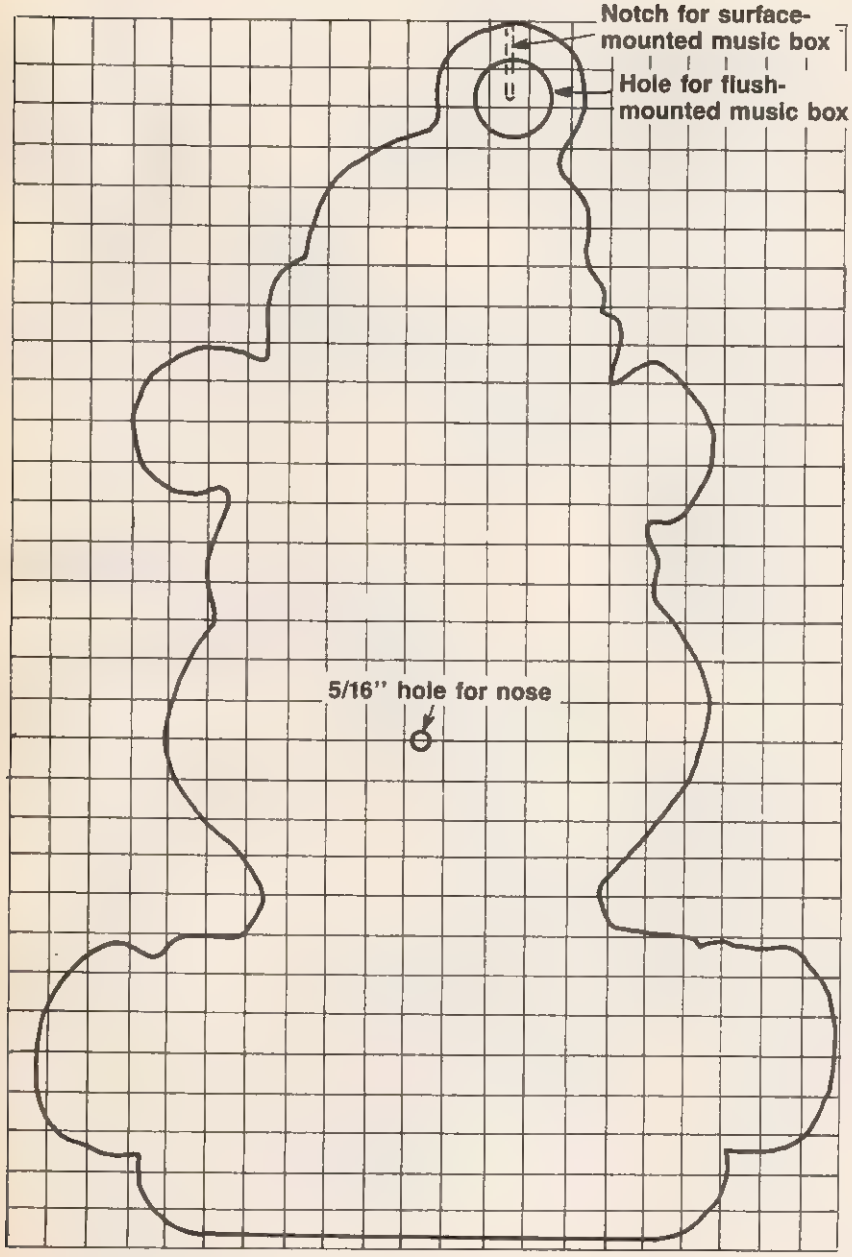


Drawing No. 2—Painting Guide

Continued on page 54

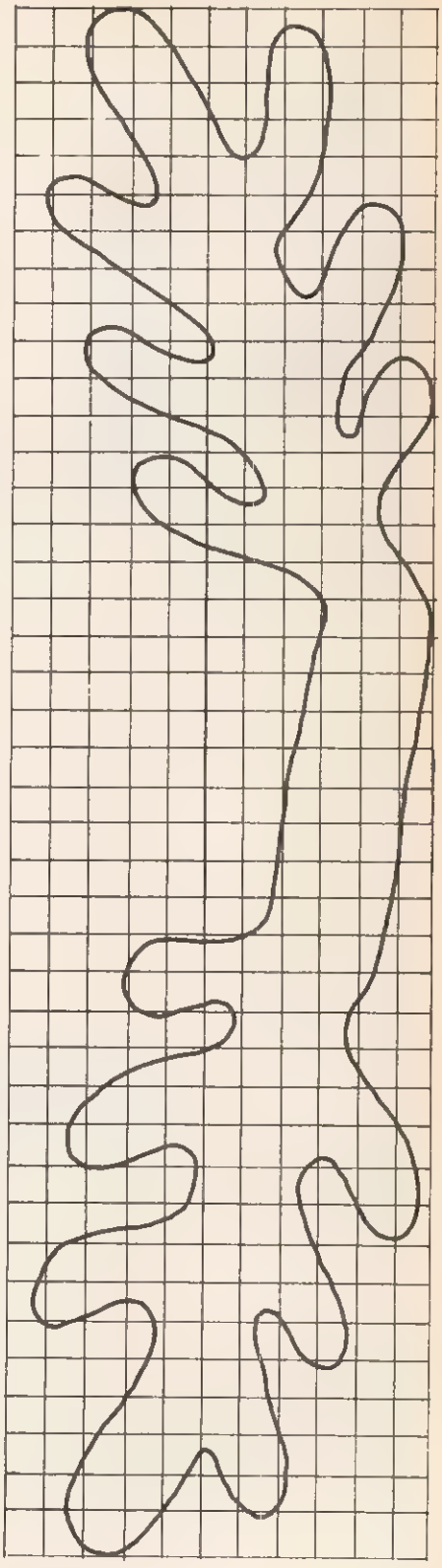
 Continued from page 53

Moose Head



One square = 1/2"

Antlers



One square = 1/2"

Drawing No. 1—Gridded Patterns

NATIVITY SCENE Project 11

Designed by Lavon B. Smith
(Color photo page 67)

SUPPLIES

Tools: table saw; band saw; drill with bits; belt sander; screwdriver; stapler; hot glue gun with glue sticks
Four dowel pins, each 1/4" Dia. x 4"
Square
Clamps
Carbon paper
Stylus
Sandpaper, assorted grits
Wood glue
Finishing nails, 4-penny and 6-penny
Sheetrock screws, 1" and 1-1/4" long
Paneling nails
1/4" doweling
Wire coat hanger
One piece of burlap, approx. 18" x 36"
Fabrics of choice (for clothes for four figures—two shepherds and two wise men): four pieces 4" x 5" (for the heads); four pieces 5" x 7" (for the headdresses); two pieces 4" x 8-1/2" (for shepherds' bibs); two pieces 3-1/2" x 5" (for wise men's bibs); four pieces 10" x 12" (for the robes); four 12" lengths of ribbon or yarn (for the belts); four 8" lengths of ribbon or yarn (for the headbands)
Cotton—for stuffing the heads
One piece of plexiglass, 14-3/4" x 30-1/2"
Small fluorescent light

INSTRUCTIONS

Make the wall-and-floor assembly

Cut the ends (A), bottom (B), and upper and lower back boards (C and D) to specified dimensions. Using six-penny finishing nails, assemble the parts as shown in Drawing No. 1. **Note:** if you are using two boards for each end (A), they can be glued together as they are attached to the bottom (B).

Cut frame supports (E) and (F) to size and then nail the front support (E) between the ends (A) as shown in Drawing Nos. 1, 4, and 6. Use 1-1/4" sheetrock screws to attach the end frame supports (F) to the ends as shown in the drawings. **Tip:** keep the glued-up ends (A) clamped up while screwing the end frame supports (F) to them.

Next, nail the upper-back board (C) in place between the ends (A), and then nail the lower-back (board) between the ends (A) and against the bottom (B). To complete the wall-and-floor assembly, cover the bottom (B) with burlap and staple it to the wood.

Make the interior support assemblies

Cut the interior uprights (J) and cross members (K) to specified dimensions. Referring to Drawing No. 2, measure and locate where the cross members (K) are to be joined between the uprights (J). Next, secure the cross members (K) in place between the uprights (J) with glue and paneling nails.

Cut the fence slats (L) to size. Both the interior-support slats and the slats that will be installed along the side and back walls are of identical size, and thus all 96 of them can be cut at this time. Use a hot glue gun and glue sticks to attach the slats to the interior support assemblies as shown in Drawing Nos. 2 and 6.

Make the three fence assemblies

Three fence assemblies are required for this project—each is comprised of two (horizontal) fence rails (parts M or N) and a number of (vertical) fence slats (L). Start constructing the fence assemblies by cutting the rails (parts M and N) to size—cut them about 1/2" longer than the space they will occupy, and trim them to fit as they are assembled. Next, temporarily fasten all six rails (M and N) to a piece of scrap wood by driving a wire brad through both ends of each rail, keeping the rails parallel to each other and spaced apart as shown in Drawing No. 3. Use a hot glue gun and glue sticks to fasten the slats (L) to the rails (M and N), keeping them spaced about 1/4" apart as shown in the drawing. Let the glue dry, remove the three fence assemblies from the scrap wood, and set them aside for final assembly. **Note:** as explained in Drawing No. 3, two of the fence assemblies will fit along the ends (A) and the third fence assembly (the longest of the three) will be secured to the lower-back board (D).

Make the manger and roof assembly

Cut the manger ends (G), slats (H), and bottom (I) to specified dimensions, and then use wood glue and finishing nails to secure the bottom (I) between the two end boards (G) as shown in Drawing No. 5. Next, start from the top and glue the slats in place (across the two end boards) as shown in the drawing.

The next step is to make the roof assembly. Referring to Drawing No. 6, lay out and cut the gable ends (O) and roof boards (P and Q). Attach the two roof boards to the gable ends with 1" sheetrock screws.

Continued on page 56

Cut approximately 185 shingles to size as shown in Drawing No. 7, and secure them to the roof boards with hot glue.

Assembly

Referring to Drawing No. 8, trim the back-fence assembly as needed to fit along the back wall, and then secure it in place with hot glue. Repeat this procedure for the two end-fence assemblies.

Carefully study Drawing Nos. 1, 4, and 8, and then secure the two front upright assemblies in place by driving 1-1/4" sheetrock screws through part (E) into the top ends of the interior uprights (J). Next, turn the wall-and-floor assembly upside-down and drive screws up through the bottom (B) into the bottom ends of the interior uprights (J). Flip the wall-and-floor assembly back to a right-side-up position and glue the third upright assembly in place as shown in Drawing No. 8. Continuing to refer to the drawing, glue the manger in position against part (D).

The roof assembly simply rests upon the top edges of the wall-and-floor assembly. Cut a piece of plexiglass to fit over the top of the wall-and-floor assembly (Approx. 14-3/4" x 30-1/2")—the plexiglass serves to (invisibly) support a small fluorescent light, which is used to illuminate the Nativity Scene from within.

Make the shepherds and wise men

All four figures are cut from 1-1/2" stock. Transfer the shepherd and wise men patterns shown in Drawing Nos. 9 and 10 to the wood and cut them to shape with a band saw. Use a belt sander to sand the shepherd's waists to a round shape and also to round over all sharp edges—this will make it easier to clothe the figures and will make them look more realistic. Drill a 1/4"-Dia. hole in the top of each figure as shown in the drawings.

Referring to Drawing No. 13, cut the material for the four heads and sew them as shown. Next, make two shepherds' crooks from the wire coat hanger as shown in Drawing No. 14.

Clothe the four figures

To clothe the four figures (two shepherds and two wise men), follow the nine steps illustrated below.

Step 1. After the cloth has been sewn for the heads, stuff the cylindrically-shaped cloth about half full. Apply hot glue to the end of one 1/4" dowel pin and stick it up into the center of the stuffed area.

BILL OF MATERIALS

Part	Description	Size in inches	Material Used	Quantity
A	Ends*	3/4 x 14-3/4 x 12-3/4	Pine	2
B	Bottom	3/4 x 14-1/4 x 29	Plywood	1
C	Upper-back board	3/4 x 2 x 29	Pine	1
D	Lower-back board	3/4 x 5 x 29	Pine	1
E	Front frame support	3/4 x 1-1/2 x 29	Pine	1
F	End frame supports	3/4 x 3/4 x 12-1/2	Pine	2
G	Manger ends	3/4 x 3-3/4 x 4-1/8	Pine	2
H	Manger slats	3/16 x 1/2 x 9-5/8	Pine	6
I	Manger bottom	3/4 x 2-3/4 x 7-3/8	Pine	1
J	Interior uprights	5/8 x 3/4 x 11-1/4	Pine	6
K	Cross members	5/8 x 5/8 x 4-3/4	Pine	9
L	Fence slats	3/16 x 1/2 x 4	Pine	96
M	Fence rails—end walls	3/16 x 1/2 x 13	Pine	4
N	Fence rails—back wall	3/16 x 1/2 x 29-1/2	Pine	2
O	Gable ends	3/4 x 4-3/4 x 14-3/4	Pine	2
P	Rear roof	1/2 x 8-3/4 x 33-1/2	Plywood	1
Q	Front roof	1/2 x 10-1/2 x 33-1/2	Plywood	1
R	Shingles	1/8 x 1-1/2 x 3	Cedar	185
S	Shepherd bodies	1-1/2 x 3-1/2 x 8	Pine	2
T	Arms (shepherds and wise men)	3/8 x 1-1/2 x 4	Pine	8
U	Wise men bodies	1-1/2 x 3-1/2 x 5-1/2	Pine	2

* Glue-up stock as needed to attain specified width.

Step 2. Gather the loose cloth below the stuffing and secure it to the dowel with wrappings of twine. Attach the head to the figure by hot-gluing the dowel into the 1/4" hole in the figure.

Step 3. Hot-glue the bib to the front of the figure.

Step 4. Fold the top edge of the robe under, drape it around the shoulders of the figure, and then hot-glue it in place.

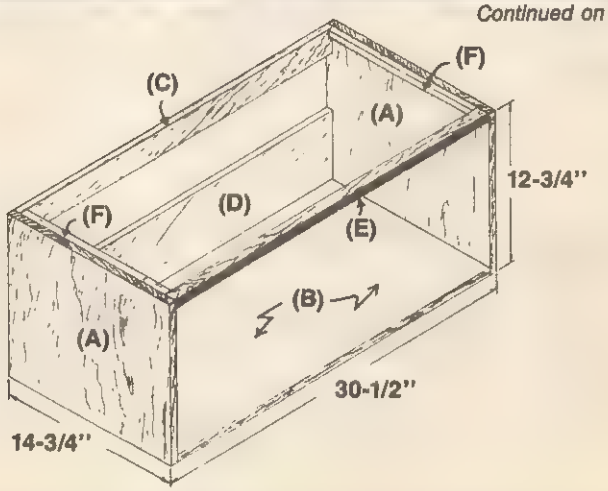
Step 5. Make a slit under each arm.

Step 6. Fold the robe around the waist and hot-glue it in place. Trim the sleeve and bottom hem of the robe to fit.

Step 7. Fold the edge of the headdress under and drape it over the head, securing it to either side of the neck with a small amount of hot glue.

Step 8. Bring forward another fold in the headdress and hot-glue it in place.

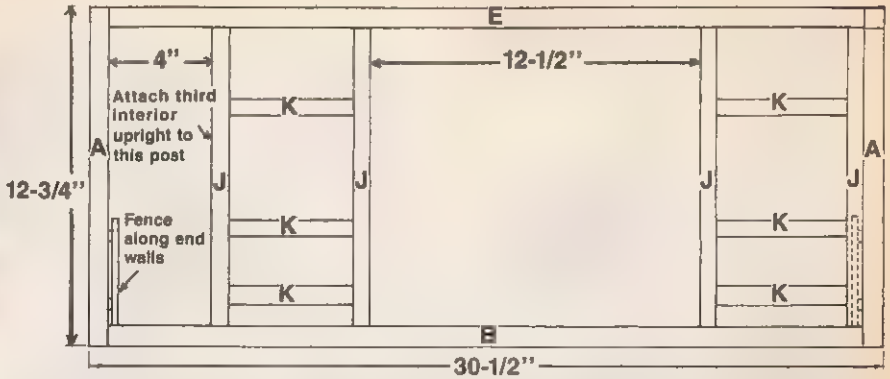
Continued on page 58



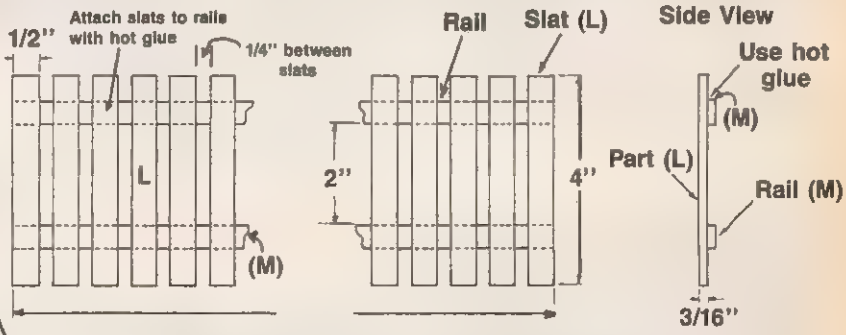
Drawing No. 1—Wall-And-Floor Assembly

Step 9. Secure the headband and tie the belt in place.

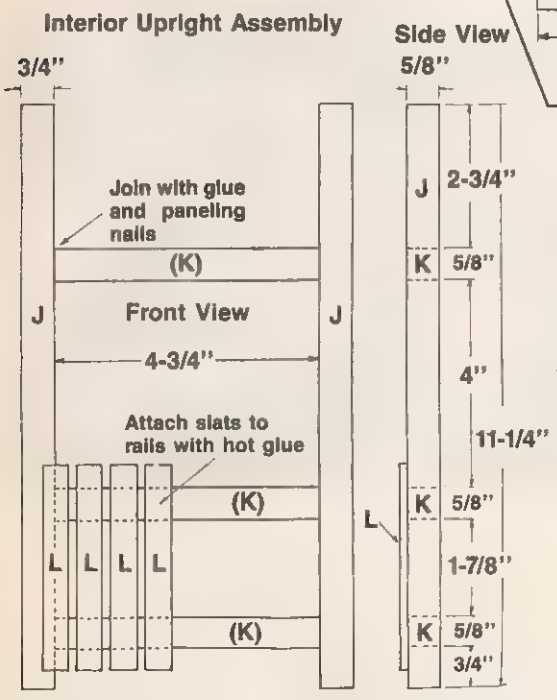
Note: make three sections of fencing—one to fit along the back wall, approx. 29" long, and one to fit along each end wall, approx. 13" long.



Drawing No. 4—Front View Of Wall-And-Floor Assembly

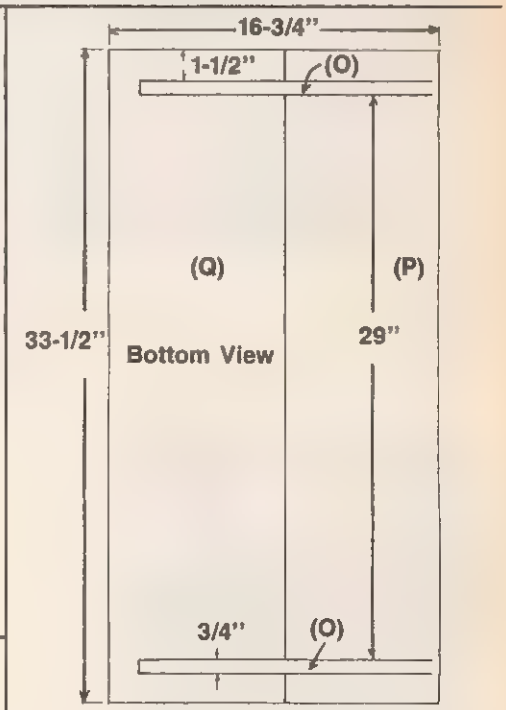


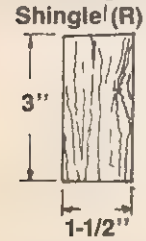
Drawing No. 3—Fence Assemblies



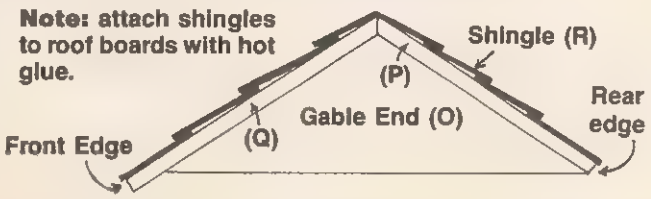
Slats—use 3/16" material

Drawing No. 2—Interior Support Assembly

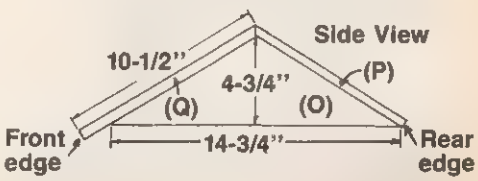




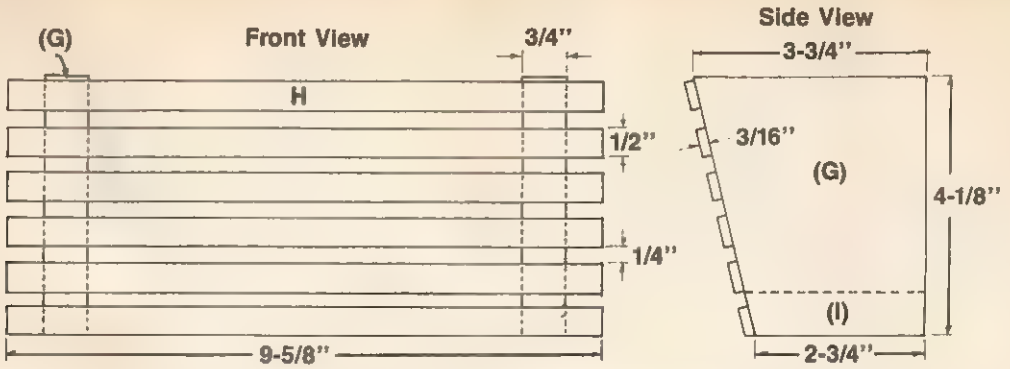
Note: attach shingles to roof boards with hot glue.



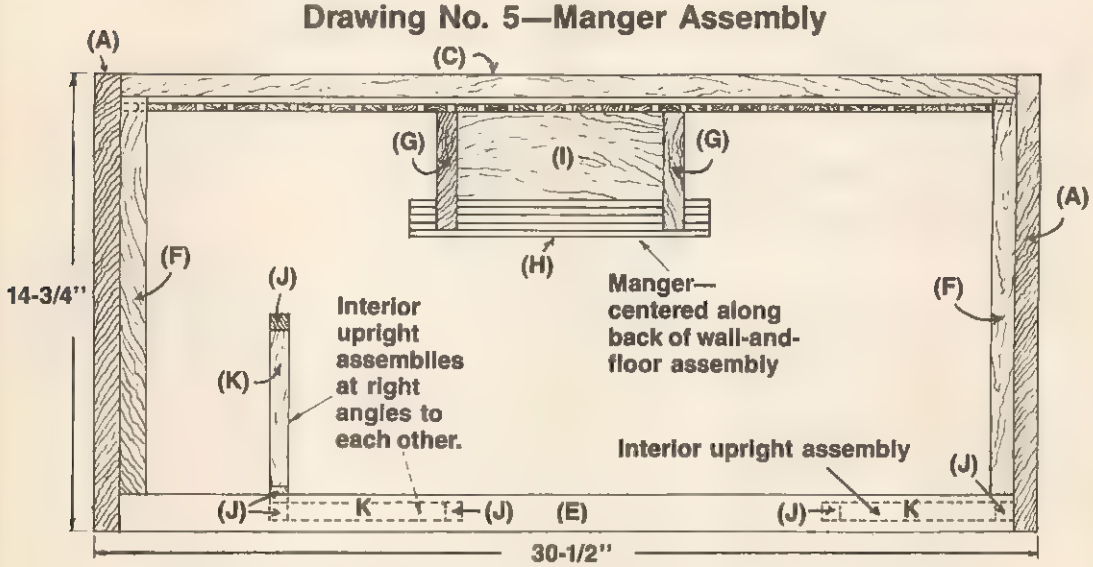
Drawing No. 7—Side View Of Roof With Shingle Detail



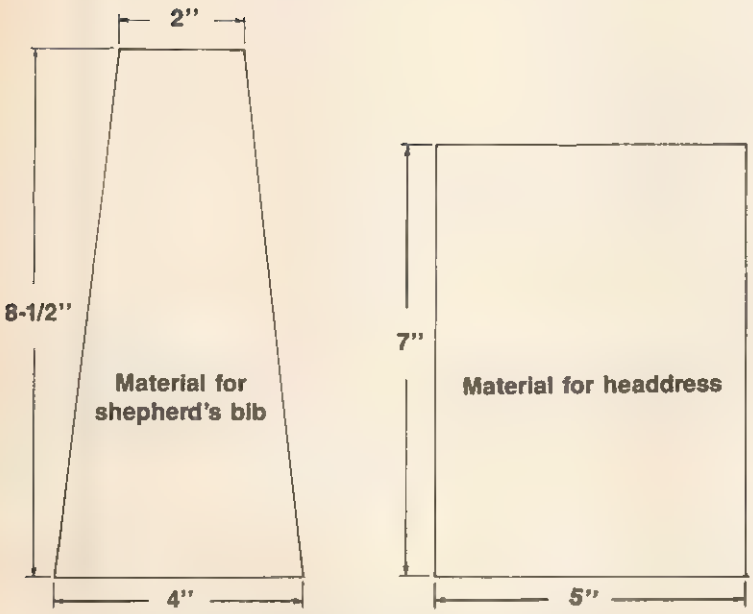
Drawing No. 6—Roof Assembly



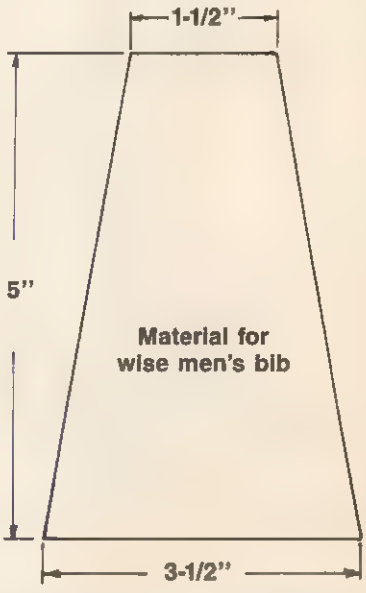
Drawing No. 5—Manger Assembly



Drawing No. 8—Top View Of Wall-And-Floor Assembly

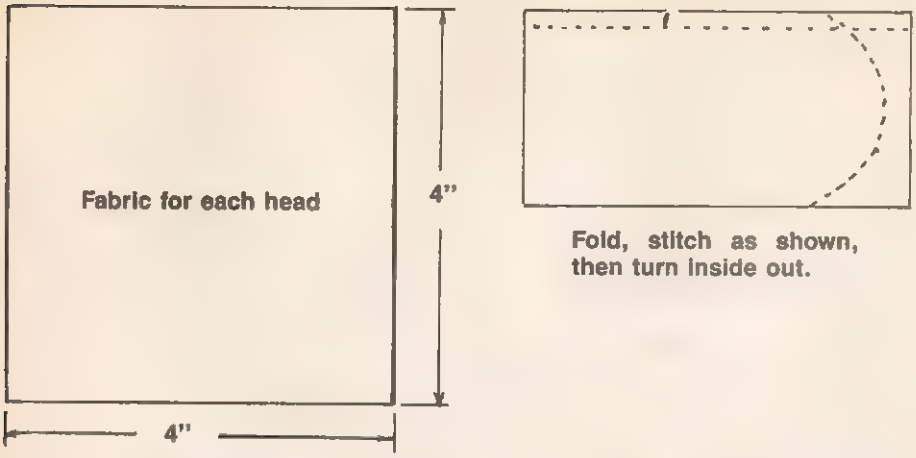


Drawing No. 11—Material For Shepherds' Bibs and Headdresses

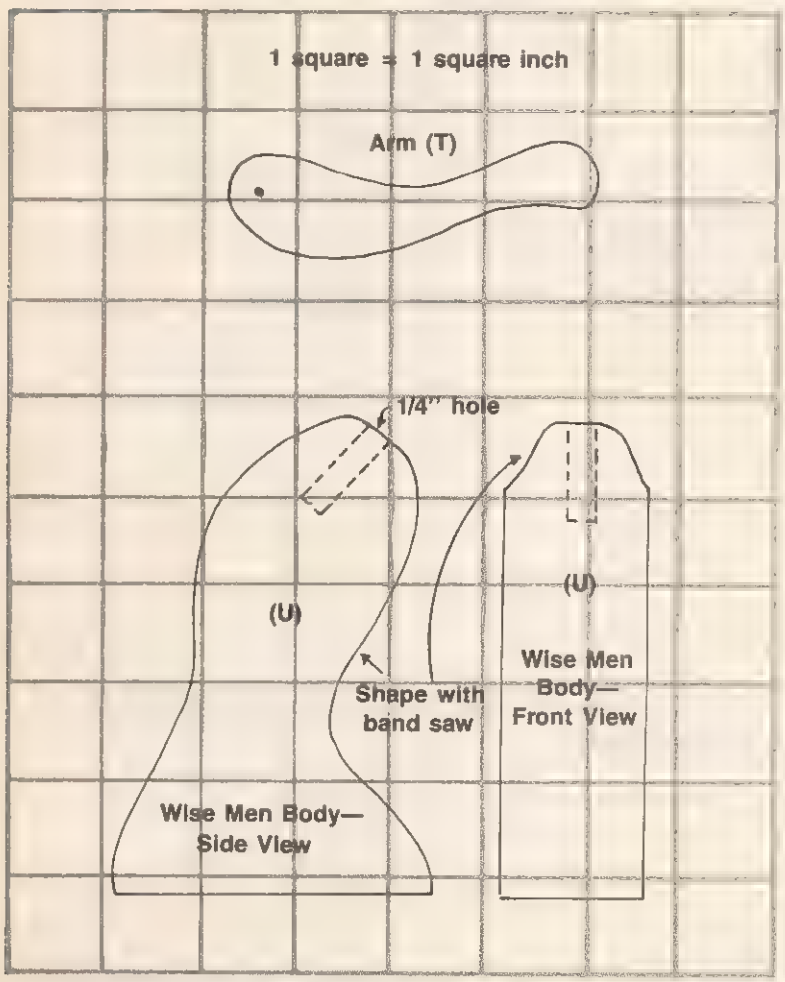


Drawing No. 12—Material For Wise Men's Bibs

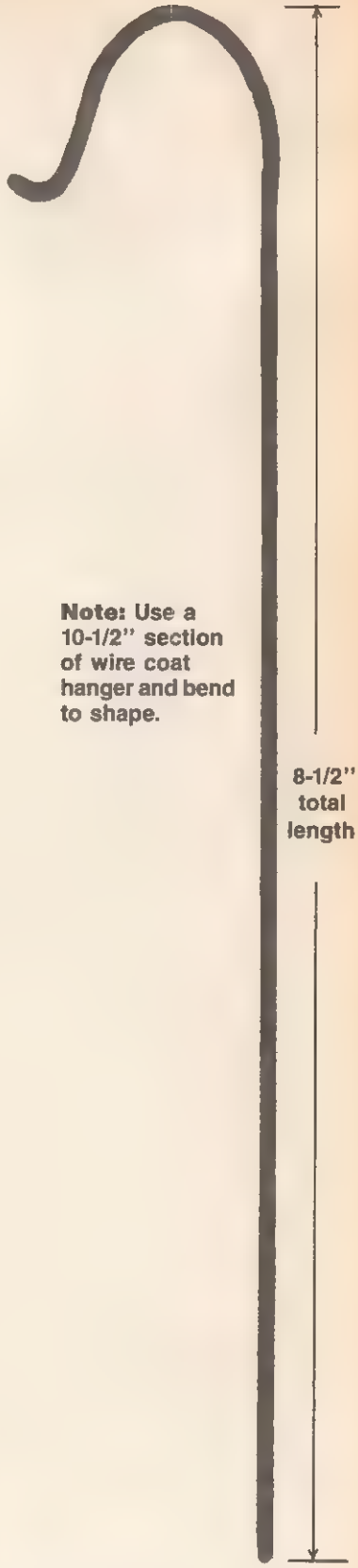
Continued on page 60



Drawing No. 13—Material And Sewing Pattern For Making The Heads

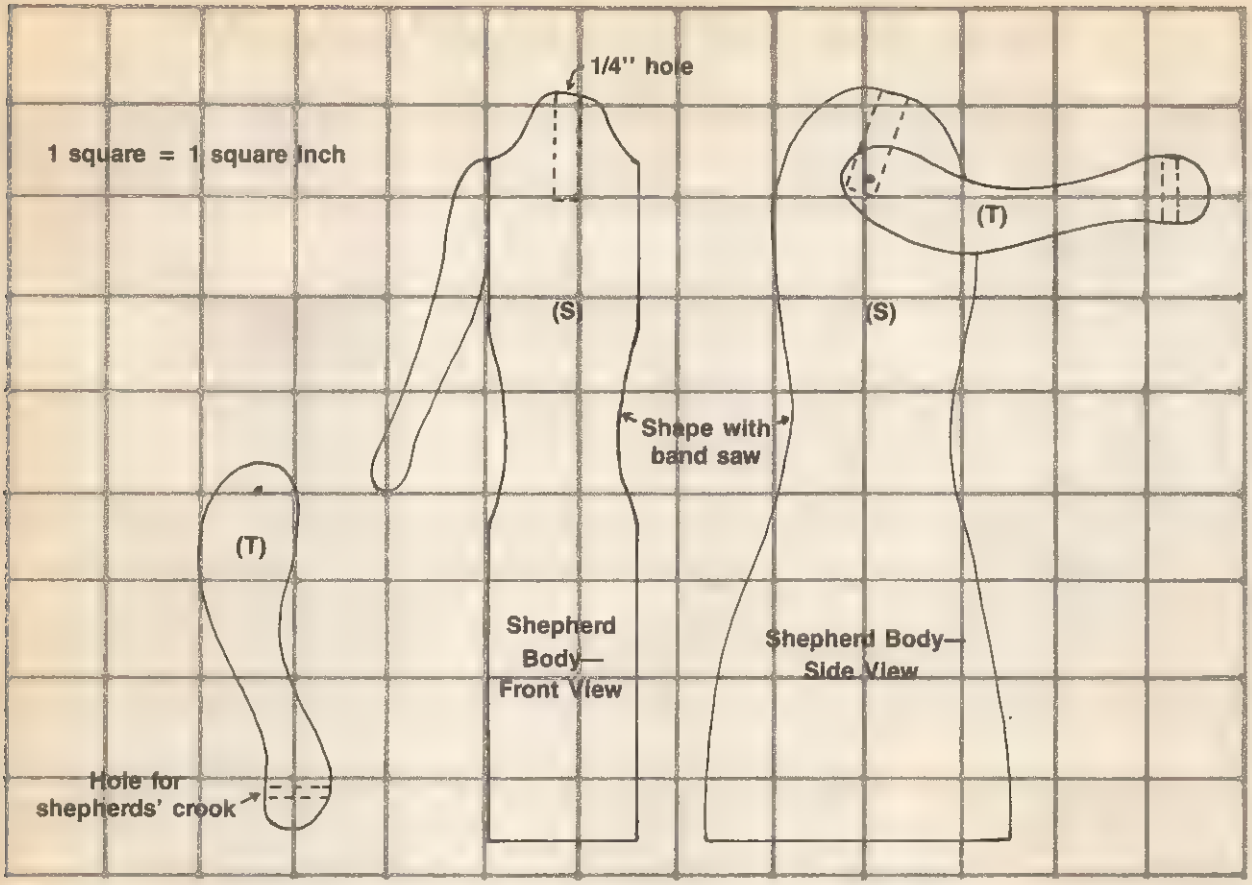


Drawing No. 10—Patterns For Wise Men Bodies



Note: Use a 10-1/2" section of wire coat hanger and bend to shape.

Drawing No. 14—Pattern For Shepherds' Crook



Drawing No. 9—Patterns For Shepherd Bodies

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Scroll Sawing Basics

By Dirk and Karen Boelman

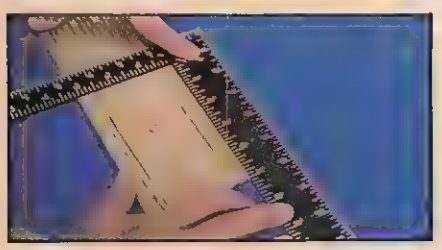
Scroll sawing, sometimes called "fretwork," can be a very relaxing and rewarding pastime. With a moderate investment in tools, it is possible to produce objects of great beauty. Some fretwork projects are highly functional, while others (too intricate and fragile for everyday use) are prized solely for their exquisite appearance.

Presented below are some of the key things to be aware of as you enter the enjoyable world of scroll sawing. If you're already an experienced fretworker, we hope that you will still be able to find within this article some helpful tips and/or new techniques that will enhance your abilities.

Preparing the wood

Before beginning a scroll saw project, take a little time to properly prepare the wood—this will ultimately save time and avoid frustration during the assembly process. Start by sanding all surfaces thoroughly, including the edges. For handling convenience, whenever possible, cut down large, unwieldy boards or sheets to smaller, easy-to-handle sizes.

Always make sure the outer edges of your stock are square. This is particularly important for silhouettes that are to be framed, as well as for projects comprised of several components that will be joined together (such as clocks, furniture, and jewelry boxes). **Tip:** pieces that require a straight outside edge or square outside corners are best pre-cut with a table saw or circular saw—this is because these saws produce straighter cut lines than a scroll saw.



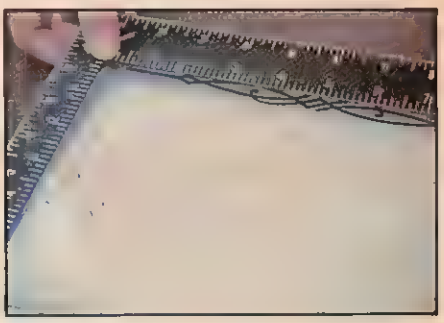
Squaring up the wood before attaching the pattern.

Some projects call for beveled or mitered joints. We recommend that you cut and fit these joints *before* making the interior cuts—this could avoid having to scrap an entire project due to an error in joinery after much time has been spent patiently sawing the components to shape. **Tip:** a disc or belt sander often works well for beveling edges—use a square and draw a pencil line (to serve as a guide) across the top surface of the edge to be beveled.

Working with patterns

Most scroll sawyers use full size paper patterns for their projects. We suggest that you photocopy the original pattern and attach the *copy* directly onto the wood, saving the original pattern for future use. Through experience, we have found that most published scroll saw patterns have become distorted in some manner during the processes of printing and photocopying. Therefore, it's a good idea (where appropriate) to check patterns for square corners, lines that are supposed to be parallel or perpendicular, and circles that are "true," and then make any needed adjustments.

Many projects make use of tabs, slots, half-joints, and so on for assembly. These types of joints "assume" that the wood will be a certain thickness but, in actuality, wood thicknesses vary considerably. To remedy this problem, it is often necessary to alter the pattern to conform to the actual thickness of the wood you are using. The easiest method of doing this is to place the wood on edge directly on top of the pattern in the appropriate location and trace around its actual thickness.



Checking the pattern for square corners.

Altering the pattern to conform to the actual thickness of the wood.

Once you're sure that your pattern is correct, attach it directly to the wood using a temporary-bonding agent. Two of the most popular temporary bonders are spray adhesive and Rubber Cement.

Spray adhesive or Rubber Cement can be used to temporarily bond the pattern to the wood.

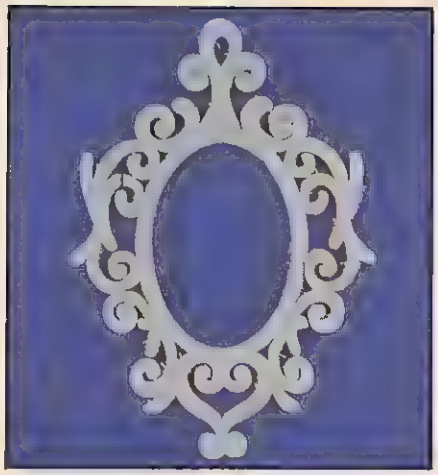
Stacking and drilling

To save time and also to ensure uniformity, it often makes sense to *stack saw*—that is, to cut out a single pattern that has been affixed to two or more layers of wood. When stack sawing, the number of wood layers that can be used is limited by the wood's hardness and the total thickness of the stock—of course, the stack's total thickness should not exceed the maximum that is recommended for your scroll saw, which is typically in the 1-3/4" to 2" range.

Stacking several layers of wood makes sawing more efficient and ensures uniformity.

Whether stack sawing or cutting through a single layer, a *backer board* is recommended—this is simply a layer of waste wood or cardboard that is secured to the underside of the wood during sawing. The backer board helps to eliminate "feathering" on the back side of the bottom layer of wood.

To reduce "feathering," a backer board (here a piece of thin plywood) is attached to the bottom of the stack.



An example of a feathered piece—this is what a backer board helps to eliminate.

During sawing, stacked layers of wood can be held together in a variety of ways, including using small nails, brads, staples, double-sided tape, or masking tape. These fasteners are placed around the outer edge of the stacked wood pieces. When stack sawing a large pattern, additional nails, brads, or staples can be used in the interior waste areas for increased stability—make sure to place these in waste areas that will be cut out last.

Brads are driven into the stack (around the outer edge) to prevent the wood from moving.

When stack sawing pattern pieces whose outside edges have been precut with a table saw or circular saw (to ensure straightness or squareness), you may not have any outside area available in which to drive any fasteners. In this case, use masking tape around the outer edges and drive the nails, brads, or staples into the interior waste areas.

Double-sided tape adheres very securely to wood. Thus, it should only be used around the outer edges of a stack when those areas are not "keepers" for the project—otherwise, when you remove the tape, it might damage surfaces that are essential to the finished project.

For interior cutouts, it is first necessary to drill small holes within the areas to be cut out. These holes are used to thread the scroll saw blade through the wood prior to beginning the interior cut.

Before drilling, make a depression for the drill bit with an awl—this will prevent the drill bit from "wandering." Locate the drilled hole close to the point at which the interior cut will begin. A drill press is ideal for making these holes, but a hand drill is also an option, provided that it remains perpendicular to the wood. Hold your project pieces firmly against the backer board while drilling to prevent tear-out.

Using an awl to make a depression for the drill bit.

A drill press is ideal for drilling holes in the waste areas.

Sawing tips and techniques

When installing your blade in the scroll saw, face the cutting edge forward with the teeth angled downward. **Note:** blades often have a slight burr along one side (caused by the manufacturing process); this burred edge tends to pull the blade slightly to that side during sawing—therefore, make sure to face this (burred) side of the blade toward the waste areas of the pattern.

Inside cuts can usually be made in one direction, beginning and ending at the same point. We recommend starting these cuts at an *inside corner* rather than at an outside corner (see **Fig. 1**)—this is because outside corners have a tendency to chip off, especially when cutting plywood.

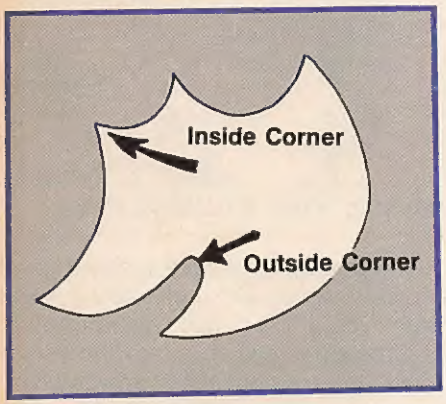
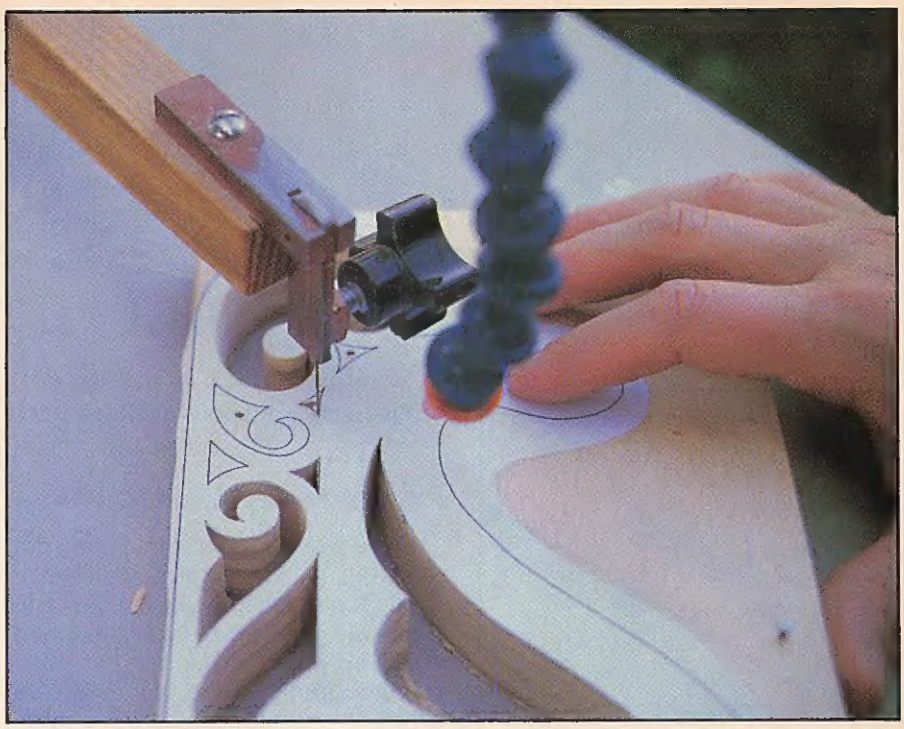


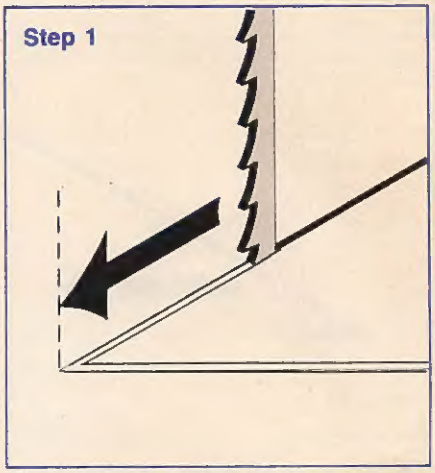
Fig. 1. Start an inside cut at an inside corner, not at an outside corner—outside corners have a tendency to chip off when being sawn.

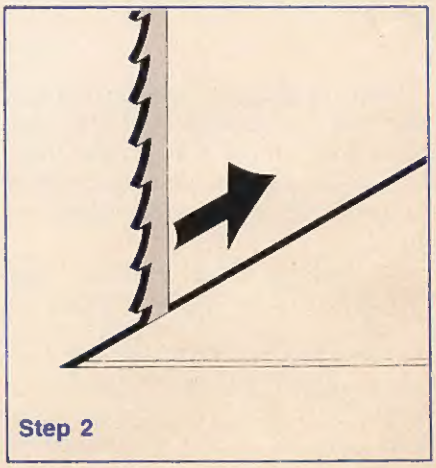


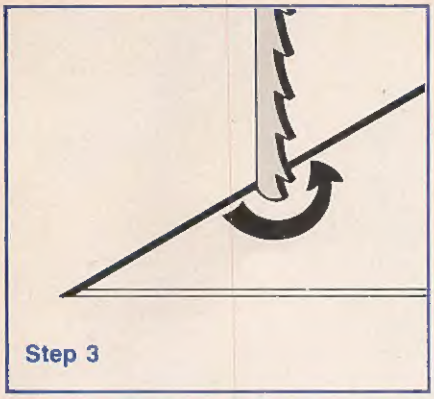
Sawing interior cuts.

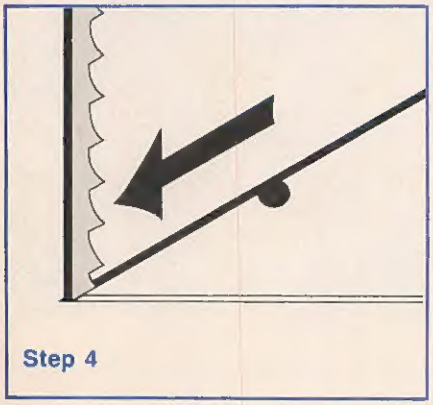
When cutting along a pattern line, use only one hand to direct the blade—the other hand is best used to hold down the workpiece. Try to saw straight lines and curves in one motion, feeding the wood into the blade at a steady rate. Oddly enough, sawing very slowly to stay right on the pattern line does not work well—rather, it usually produces wavy lines. If you find that you've strayed from the pattern line while sawing, your best bet usually is to keep moving and gradually ease your way back to where you should be.

When cutting an inside corner, if the corner angle is 90° or greater, you will most likely be able to turn the corner with your saw blade by simply rotating the workpiece quickly. If the inside corner's angle is *less* than 90°, follow these five steps, which are illustrated in **Fig. 2:** *Step 1*—cut into the corner; *Step 2*—stop and then, staying within the saw kerf, back the blade a short distance from the corner; *Step 3*—turn your blade completely around, making sure to turn *into* the waste area; *Step 4*—maneuver the dull side of the blade back into the corner; *Step 5*—turn the blade as required to saw out of the corner.









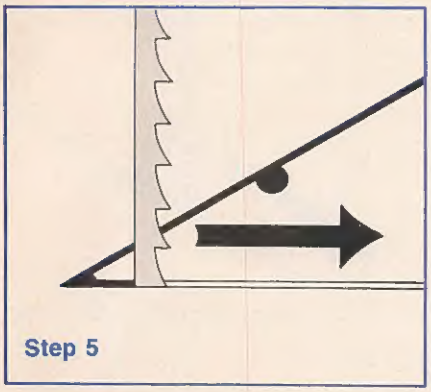


Fig. 2. Shown above are the five steps for sawing an inside corner of less than 90°.

When cutting an outside corner, saw past the corner and into the waste area, make a loop, and then come back to the corner and continue along the pattern line as shown in **Fig. 3.**

For sawing projects which use slots, tabs, and half-joints, a good rule of thumb is to cut out the patterns so that the joints are a bit tight. You can always relieve the joint later with a needle file or emery board, but loose-fitting joints can ruin an otherwise fine project.

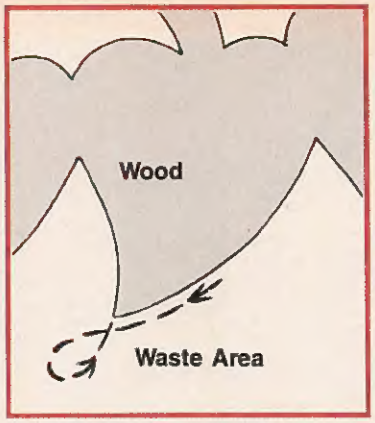


Fig. 3. Sawing an outside corner.

Pattern removal and touch-up

Once a pattern piece has been cut to shape, it's time to remove the pattern. Generally speaking, paper patterns will peel away from the wood easily—if you find your patterns sticking stubbornly to the wood, you've probably used too much spray adhesive. To remove "stubborn" patterns, try scraping the paper off (lightly) with a jack knife. For very stubborn patterns, lighter fluid may by helpful—apply it to the top surface of the pattern and work quickly to remove the paper before the fluid dries. **Caution:** lighter fluid is highly flammable, so please carefully read all the warnings on the label. Once the pattern has been removed, sand the surface to remove any traces of glue.

Removing a paper pattern from the wood.

Some pieces will require touching up to correct or hide minor imperfections. Rasps, files, emery boards, a jack knife, and sandpaper are all useful for making these minor adjustments.

Assembling scroll-sawn projects

Each project has its own unique assembly requirements. In addition to the tools listed above (for touching up), the following tools will prove useful for assembling scroll-sawn projects: disc or belt sander, small square, rubber bands, assorted clamps, small hand plane, toothpicks, and yellow wood glue.

General assembly tips:

* Wood blocks or cleats can be added to some projects to facilitate assembly and strengthen the finished piece.
* Where joints are visible, glue joints are recommended—nails, brads, etc. should be used inconspicuously.
* Use glue sparingly—excess glue that squeezes out of a joint seals the wood so that finishes will not penetrate.

Finishing

There are many ways to finish projects, and of course, your own experience must be your guide here. The finish we use most frequently is Watco Danish Oil Finish. It is easy to apply and really brings out the natural beauty of the wood. Small projects can actually be dipped into a pan of Watco oil and hung up to dry. **Tip:** if you use Watco oil outdoors, work in the shade—otherwise it will dry too quickly.

Applying Watco Danish Oil Finish.

Now that we've given you some tips and techniques for scroll sawing, we hope you'll give this pleasurable pastime a try—we enjoy sawing very much, and are continually amazed by its vast potential and beauty. Happy sawing!

To order a FREE catalog of patterns by Dirk Boelman, see The Art Factory in our Source of Supply list.

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